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AUTHOR Eisenman, Richard L.; And Others
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ABSTRACT

A study was done to (1) examine the impact of terminating the G.I. Bill in respect to the number, quality, and representativeness of Service accessions (supply of volunteers for military services), and (2) provide a means for measuring the relative costs and benefits of alternative educational programs which might be needed to sustain military strength in the event of G.I. Bill termination. Systematic modeling was undertaken to explain and quantify the mechanism by which the G.I. Bill operates as an incentive. Three models were developed to address motivation, the queue, and costs and comparative benefits. The results showed that (1) the proportion of an enlistee's compensation represented by the G.I. Bill has declined from 31% to 20% since 1947, (2) as an enlistment incentive, and postservice G.I. Bill provides for at most 20,000 Army high school graduates and costs $50,000 per accession, (3) serious concern for enlistment losses can be narrowed to high school graduates, for the Army, and (4) educational benefits are secondary rather than primary incentive factors. It was recommended that the best management options are to (1) develop new approaches to attract the 19- through 25-year-old high school graduate, (2) organize and publicize a centralized inservice education package, and (3) settle the contingency plan for an alternative postservice benefit. (EM)

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Educational Benefits Analysis

An Examination of the Effects of G.I. Bill Educational Benefits on Service Accessions

November 1975

Richard L. Eisenman
Mark J. Eitelberg
Agnes C. Purcell
Barry M. Richmond
Curtis L. Wagner III

Management Sciences Group
HumRRO

with
Richard W. Hunter, OASD(M&RA)

U.S. DEPARTMENT OF HEALTH,
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HUMAN RESOURCES RESEARCH ORGANIZATION
300 North Washington Street
Alexandria, Virginia 22314

EDUCATIONAL BENEFITS ANALYSIS

ABSTRACT

Problem

Serious consideration of the termination of post-service G.I. Bill educational benefits led to President Ford's May 1975 request for legislation to end benefits for future accessions.

The Department of Defense, therefore, required an assessment of the impact of G.I. Bill termination on Service accessions and a means for measuring the relative costs and benefits of alternative educational programs. At the outset of the Educational Benefits Analysis, evidence could be found to support impact estimates anywhere within the range of 3 to 60 percent.

Approach

Systematic modeling was undertaken to explain and quantify the mechanism by which the G.I. Bill operates as an incentive. Three models were developed to address *motivation*, the *queue*, and *costs and comparative benefits* -- and to integrate respective findings.

The *motivation model*, or micro analysis, involved the organization of both incentives and individuals into groups and scales. This organization of quantitative attitudinal data employed statistical procedures which include factor analysis, indices, Guttman scaling, correlation, the Automatic Interaction Detector (AID), and Exploratory Data Analysis.

The *queue model*, or macro analysis measured personnel flows by means of the computerized Educational Benefits Model (EBM). The EBM first processed census estimates into enlistment-proclivity groups and then into queue estimates. Information sources were the Census Bureau, current attitudinal surveys, and the National Longitudinal Study. Termination impact was evaluated through four validating analytical methods, centering on an econometric macromodel.

Assessment of *costs and benefits* involved a general appraisal of the G.I. Bill as well as the design of specific post-service alternatives. The general appraisal phase consisted of a trend analysis of the post-service G.I. Bill as a proportion of military compensation. The evaluation and design of alternatives were developed as a part of management support activities, conducted in the operational policy environment.

Management support activities were an integral part of the overall Educational Benefits Analysis project. These activities helped the Analysis team maintain a policy focus and provided management with a number of analytical working documents.

Results

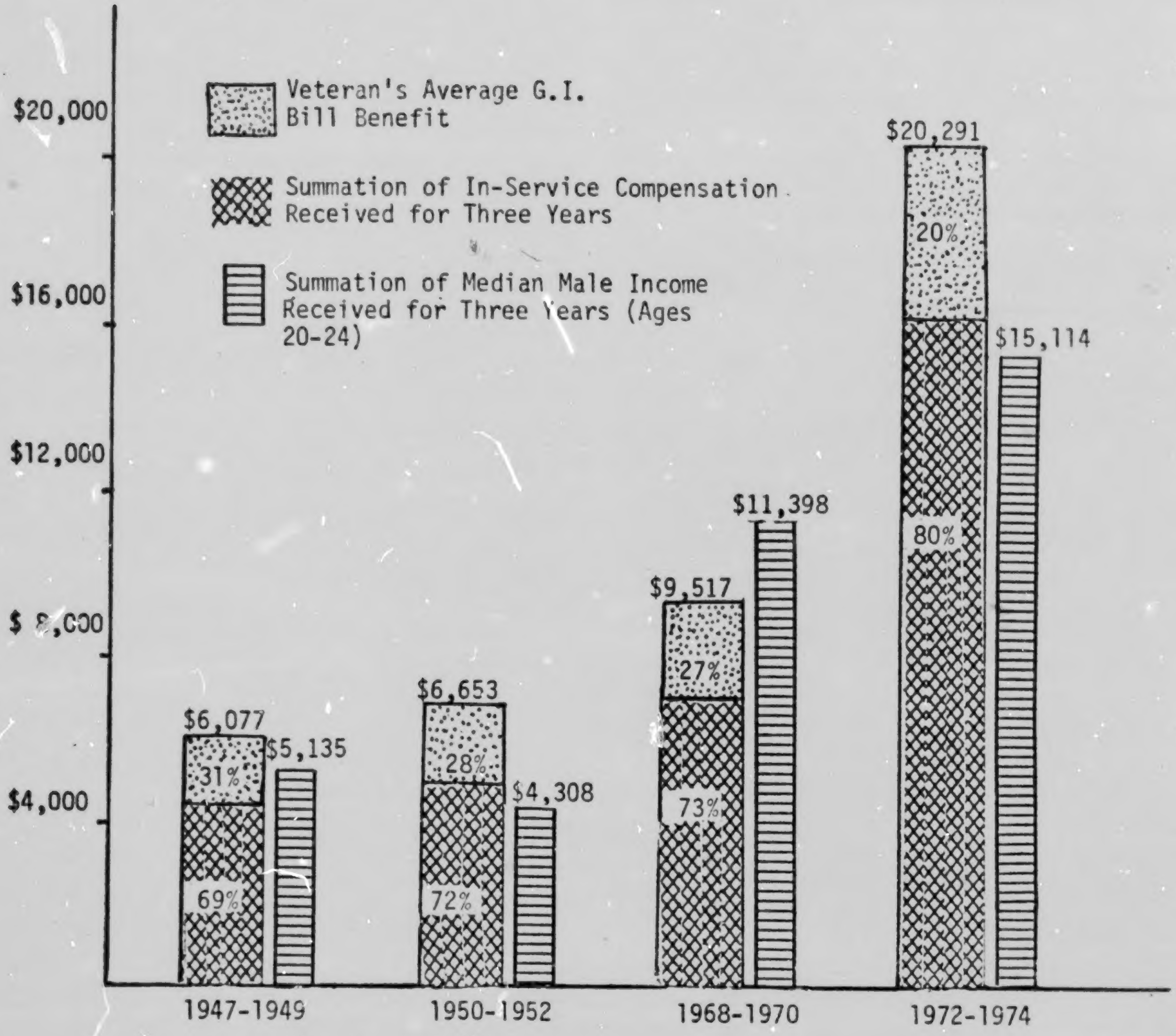
Costs and Benefits

* The post-service G.I. Bill is a *large* national program, as measured by entitlements, usage, and share of federal funding (See tables opposite).

* The post-service G.I. Bill represented 31% of an enlistee's compensation in 1948 versus 20% in 1973.
  - While in-service compensation became competitive with civilian compensation (See figure opposite)

* A variety of substitutes for the post-service G.I. Bill are feasible.
  - Costs could range from $24M to $1,252M yearly.
  - Number of new users could range from 15,000 to 260,000 yearly.
  - Benefits to Defense could include a Reserve service eligibility requirement.
  - Administration could be handled by commercial insurance.

* As an enlistment incentive, the post-service G.I. Bill provides at most 20,000 Army high school graduates and costs at least $1B.
  - Thus, $50,000 per accession.



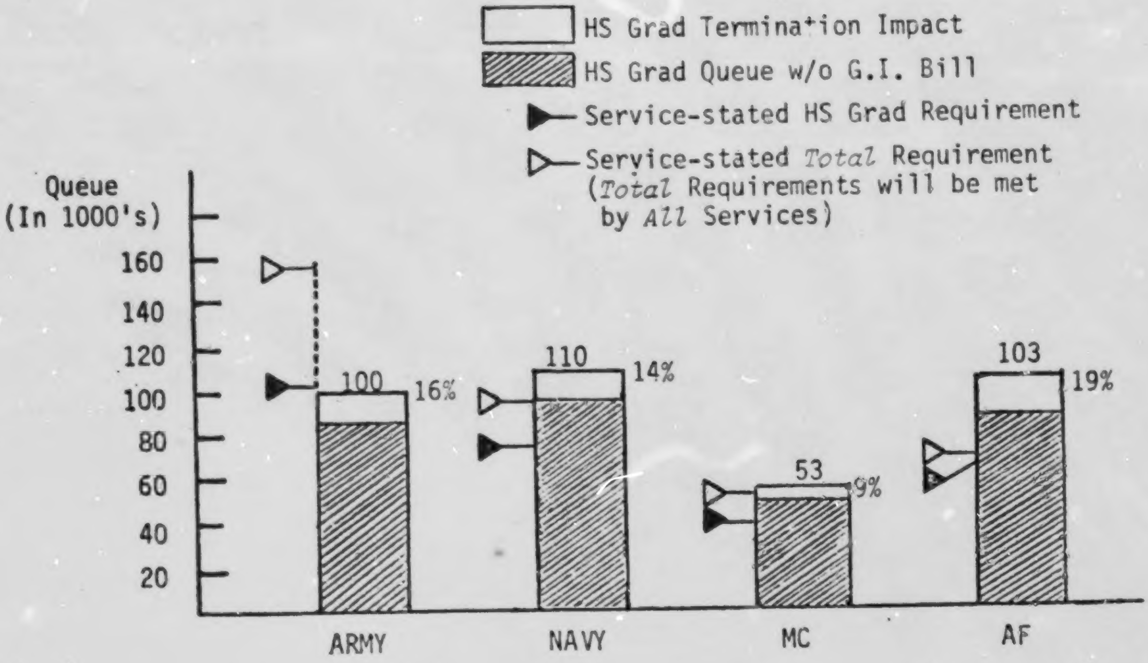
The G.I. Bill as a Proportion of Military Compensation

* If there is any serious concern for enlistment losses, it can be narrowed down to *high school graduates* for the *Army*. (See figure opposite).
    - The Army would be borderline for high school graduate requirements even with the G.I. Bill.
    - The other Services should be able to make their self-stated high school graduate requirements even without the G.I. Bill.
    - All Services can make their total (graduate and nongraduate) requirements without the G.I. Bill.

* The best estimate is that G.I. Bill termination would deplete 15% of the queue, if no management actions were taken.
    - Upper limit would be 21%.
    - Overestimates (40% to 60%) of termination impact result from surveys of self-professed interest in the G.I. Bill.
    - Underestimates (3%) result by considering the G.I. Bill as a primary or independent enlistment incentive.

* Although G.I. Bill termination might increase reenlistment eligibles by 12%, this increase is probably not needed.
    - G.I. Bill seekers tend not to reenlist (odds vs. reenlistment are 7.6:1 compared to about 2.5:1 overall).

* Major changes in the national environment could alter impact predictions.
    - The present queue without the G.I. Bill would be comparable to the queue of a few years ago with the G.I. Bill.
    - In the 1960's, termination impact was about 25%.
    - Unemployment and the G.I. Bill are overlapping influences since the same people would be lost through a decrease in unemployment as through G.I. Bill termination.



Estimated Accession Queue for Male HS Graduates
vs. Stated Requirements for July 1975-June 1976

Motivation

- Educational benefits are not in themselves major incentive factors, but rather secondary motivators.
- In-service education and post-service G.I. Bill benefits are correlative and are most often cited in a package with three or more other incentives.
- G.I. Bill seekers are generally older and differ from their peers in aspiration for advanced education.
- G.I. Bill seekers are similar to their peers in distribution by intended branch of Service, and in their support of other enlistment incentive items.

Recommendation

- The best management options are to:
  - Develop new approaches to attract the 19-25 year-old high school graduate.
  - Organize and publicize a centralized in-service education package.
  - Settle the contingency plan for a post-service benefit.

FOREWORD

The educational benefits analysis was supported by the Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs (OASD(M&RA)) and performed by the Human Resources Research Organization (HumRRO). The prinicpal objectives were (1) to examine the impact of terminating the G.I. Bill in respect to the number, quality, and representativeness of Service accessions; and (2) to provide a means for measuring the relative costs and benefits of alternative educational programs which might be needed to sustain military strength in the event of G.I. Bill termination.

The study involved assembly and interpretation of a substantial information base, constructed from existing sources. Previous papers on educational programs were culled for useful results and guidance. Quantitative data came primarily from the Census Bureau, the National Longitudinal Study (by the Office of Education), Gilbert Youth Surveys and Department of Defense Surveys.

The Management Sciences Group (MSG) in HumRRO's Eastern Division is responsible for the design and execution of this analysis. Richard L. Eisenman directed the project. Mark J. Eitelberg, Barry M. Richmond, Curtis L. Wagner III, and Agnes C. Purcell served as principal research investigators. Richard W. Hunter of OASD(M&RA) guided the project and participated in the policy focus. Other MSG members also contributed to the overall effort--especially Mr. Gus C. Lee, Mr. Alastair C. Fyfe, Mrs. M. Nell Bailey, Mrs. Ruth W. Benedict, Mr. Levin B. Broughton, and Mrs. Mary E. Morrissey.

The special cooperation of the Manpower Research and Data Analysis Center (MARDAC) of OASD(M&RA), The National Center for Educational Statistics (NCES) of the Office of Education, the Policy Analysis staff of the American Council on Education (ACE), Dr. Dave Grissmer of the General Research Corporation (GRC), and Dr. Dave O'Neill of the Center for Naval Analyses (CNA), is also gratefully acknowledged.

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Chapter 1

INTRODUCTION

SPECIFICATION OF OBJECTIVES AND THE STUDY ENVIRONMENT

In March 1975, HumRRO's Management Sciences Group (MSG) suggested a comprehensive study of the G.I. Bill to its sponsors in the Office of the Assistant Secretary of Defense for Manpower and Reserve Affairs (OASD[M&RA]). On May 6, 1975, a meeting was held between representatives of OASD (M&RA) and the MSG to discuss the direction of future research efforts under HumRRO's Work Unit DRAMA. At that meeting, the following *Statement of Need* and *Task Order* were decided to be the guide for research which would estimate the impact of possible G.I. Bill termination:

Statement of Need

There is an urgent requirement for OSD to have a current, comprehensive and credible analysis of the impact of G.I. Bill termination on the supply of volunteers for military services. The analysis should also cover the costs and effects on manpower supply of alternative educational programs which may be needed to sustain military strengths in event of the G.I. Bill termination.

The need is urgent because OMB has proposed to the President that the G.I. Bill be terminated. Previous studies of the effects of the G.I. Bill termination are out of date; none of the studies considered the effects of varying employment levels; and the studies varied widely in their conclusions - partly because the data base was inadequate.

TASK ORDER: Educational Benefits Analysis

HumRRO will construct a special data base, develop the models needed, and perform the definitive studies needed of the costs and effects of educational benefits, including the G.I. Bill and alternatives, as enlistment and reenlistment incentives. The task is expected to provide the data and analysis needed for the ASD(M&RA) to reach definitive findings and conclusions on such issues as:

1. The loss in number, quality and population representativeness of new enlistments, by Services, which would result from G.I. Bill termination.
2. The effect of G.I. Bill termination on the number of reenlistments by Services.

3. The effect of varying employment levels on the foregoing estimates.
4. The marginal role of educational incentives in the context of other incentives.
5. The variance between intentions and enlistment behavior among individuals who perceive the G.I. Bill and other educational incentives as a significant enlistment incentive; conversely, the variance among those who do not regard educational incentives as important.
6. The costs and comparative benefits of alternate educational programs which may be needed to sustain military strengths in event of G.I. Bill termination.

On the next day (May 7, 1975), President Ford declared the formal end of the "Vietnam Era" and issued a proclamation terminating non-legislated wartime benefits for new military recruits. At the same time, the President sent to Congress legislation which would set June 30, 1975 as the final date on which an individual enlisting in the military could qualify for educational benefits under the G.I. Bill.

The " ....urgent requirement for OSD to have a current, comprehensive and credible analysis of the impact of G.I. Bill termination..." became even more urgent, therefore, as events began to unfold. In the period immediately following the Presidential request for termination, there arose a strong operational need for a decision structure which would array current policy alternatives in an evaluative format. To facilitate the systematic analysis and comparison of decision alternatives -- within the atmosphere of uncertainty regarding Congressional action -- it also became desirable for the MSG to provide frequent consultation and management support activities to OASD(M&RA). These activities were directed at maintaining current information about educational benefit policy options, and setting suitable strategy to counteract the effects of possible termination.

The present research was conducted to satisfy the need for credible information within the environment of imminent termination. It is an interdisciplinary effort to model the impact on Service accessions of possible termination of G.I. Bill educational benefits. Appropriate new analytical techniques and approaches have been developed and used. It is expected that further study of educational benefits will build upon the approach and results of this research.

PROBLEM FORMULATION BASED ON PREVIOUS PAPERS

Endorsement of Education as an Incentive

Survey research over the past twenty-six years shows that the most frequently endorsed reasons for enlistment in the Armed Forces were related to education and training.

In 1949, the Armed Forces Information and Education Division conducted open-ended interview surveys of Army and Air Force recruits, in order to collect information regarding the most important reasons for enlistment. In both Services, the opportunity for advanced education was cited as the most important enlistment incentive.

Since 1949, numerous surveys designed to specify motivators for enlistment have shown the importance of general education and training incentives. A list of several significant surveys and the relative importance attributed to education in each appears in Table 1.1. It should be noted, however, that the types of responses requested were not always consistent among surveys. Therefore, these results can not be compared on the basis of frequency measures or construed to be indicative of any historical trend.

The G.I. Bill as One Opportunity for Education

Although there is a historical stream of survey data which indicates the relative importance of educationally-defined incentives for enlistment, there is no evidence to support the conclusion that *opportunity for advanced education and training* is always associated with the *G.I. Bill.* In fact, both previous[1] and current[2] analysis suggest that a distinction between "education" and "G.I. Bill" may exist in the results of surveys which list both as reasons for enlistment. In addition, it is not altogether clear that the "G.I. Bill" is exclusively associated with post-service education. It is true that the G.I. Bill is usually defined as a veteran's benefit, and eligibility is determined by completion of a specified term of active

---

[1] cf. Fisher and Harford (1974) and Kriner, Orend, and Rigg (1975).

[2] For a further discussion of this theory, see Chapter 2,(Organization of Incentives).

Table 1.1

The Endorsement of Educational Enlistment Incentives in Surveys Over Time

Source	Year of Analysis	Data	Attributed Influence of Educational Incentives
OSD, Armed Forces Information and Education Division, Attitude Research Branch, Reasons for Enlisting: Army Recruits Enlisting in 1949.	1949	Survey of 1584 Army Enlistees	31% of enlistees endorsed "opportunity for advanced education" as having most influence on enlistment decision; highest among all categories of open-ended response.
OSD, Armed Forces Information and Education Division, Attitude Research Branch, Reasons for Enlisting: New Airmen Enlisting in February, 1949.	1949	Survey of 709 Air Force Enlistees	47% of enlistees endorsed "opportunity for advanced education" as most important; highest among all categories of open-ended response.
Bureau of Naval Personnel, Navy Recruitment Survey.	1967	Survey of 2,618 Navy Enlisted Men	94% of personnel endorsed "opportunity for advanced education"; most often cited reason from structured list of 12 reasons.
Bureau of Naval Personnel, 1968 Recruitment Survey: Motivational Factors Influencing Enlistment Decision	1968	Survey of 2,926 Navy Enlisted Men	85% of personnel endorsed "opportunity for advanced education"; most often cited reason from structured list of 12 reasons.
Institute for Social Research, University of Michigan, Young Men Look at the Military Service: A Preliminary Report (Youth in Transition Project)	1970 (1969)	Nationwide Longitudinal Survey of 1,799 boys nearing high school graduation (third follow-up of original sample).	43.8% endorsement of "The government agrees to pay for up to four years of college.... in return for four years of active duty"; margin of 4 to 1 over second-ranked incentive of "military pay comparable to civilian pay."
Institute for Social Research, University of Michigan, Young Men and Military Service.	1972 (1970)	Longitudinal Survey of 1,620 young men, one year beyond High School graduation (1970).	24.5% endorsement of "The government agrees to pay for up to four years of college... in return for four years of active duty"; second-ranked on list of four incentives; first-ranked among higher enlistment proclivity cohort.
Naval Personnel Research and Development Laboratory, Personnel Reactions to Incentives, Naval Conditions, and Experiences (PRINCE): A Longitudinal Research Study.	1971	Survey of 6,795 Navy Men (first sample)	39% of personnel endorsed "opportunity for advanced education" as having effect on enlistment; third most cited reason from structured list of 11 reasons.
Research Analysis Corporation, Evaluation of the Modern Volunteer Army (MVA) Program: Volume III.	1972	Survey of 2,801 Army Personnel at six Selected Installations	18% of E1-E3 personnel endorsed "opportunity for advanced education" as most important reason for enlistment; second-ranked (15%) on structured list of 10 reasons among all High School graduates.
American Institutes for Research, Navy Career Motivation Programs in an All-Volunteer Condition: I. A Cognitive Map of Career Motivation.	1973	Probing interviews of 53 high potential Navy enlistees; 58 low potential enlistees; 20 potential Junior College enlistees; 40 low potential Junior college enlistees.	47% of interviewees who did enlist cited educational benefits as an important factor; ranked third of eleven reasons. 57% of those who did not enlist cited limitations of educational benefits as deterrent; ranked first of eleven reasons. 25% of Junior College students who saw recruiter cited educational benefits as important positive factor.
American Institutes for Research. A Study of Experimental Incentives as an Influence on Enlistment Intention.	1973	Stratified sample of 860 young men age 16 to 22 years (Gilbert, May 73).	Experimental Education incentives ranked 4 and 5, by mean-rating, on list of 17 experimental incentives for enlistment.
MARDAC. Attitudes of Youth Toward Military Service in the All-Volunteer Force.	1975 (1971-1973)	Gilbert Youth Surveys (May 1971 through November 1973)	"Opportunity for advanced education and training" ranked sixth on list of twelve reasons in May 71; ranked fourth in Nov 71, May 72, Nov 72, May 73, and Nov 73; "learn a trade or skill" first-ranked. "Qualify for G.I. Bill" ranked tenth of thirteen reasons in Nov 73. Among experimental incentives, incentives involving college ranked 1 and 2 on list of 15 proposed incentives (total sample).

Continued

Table 1.1 (Continued)
The Endorsement of Educational Enlistment Incentives In Surveys Over Time

Source	Year of Analysis	Data	Attributed Influence of Educational Incentives
HumRRO. A Further Examination of Enlistment Motivation and the Disposition of Army Applicants.	1975 (1971-1973)	Armed Forces Examining and Entrance Stations (AFEES) Survey data of non-prior service personnel entering active duty (FY1972 and FY1974).	"Opportunity for advanced education" ranked first for all Service branches on list of 16 reasons for enlistment; G.I. Bill ranked 13 (FY74). Advanced education ranked second (G.I. Bill tenth) on list of 12 reasons (FY72 sample).
Opinion Research Corporation, Attitudes and Motivations Toward Enlistment in the U.S. Army.	1974 (1973/1974)	Nationwide sample of 1,517 young men aged 17 to 21 years. (Nov 73-Jan 74)	56% noncollege, 69% "quality" noncollege rated G.I. Bill as "very important" incentive; fifth-ranked on list of 10 attractions to the Army.
MARDAC, Major Findings From the May 1974 Gilbert Youth Survey of Attitudes Toward Military Service.	1975 (1974)	Gilbert Youth Survey, May 1974.	44% of those with an enlistment probability greater than 60% cited "Benefits and Educational Opportunities" as strong enlistment influence; ranked first on list of 8 "Aspects of Military"; ranked first also among 40-60% enlistment probability sample.
MARDAC, Preliminary Results of the September 1974 AFEES Survey.	1974	AFEES Survey data of non-prior service personnel entering active duty (Sept 74).	"To get more education while in service" ranked second on list of 10 most important reasons for enlistment; G.I. Bill ranked third for all Services except Marine Corps (ranked second). 24% of enlistees indicated they would not have enlisted without post-service educational assistance; 24% indicated non-enlistment in absence of in-service assistance; proportional increase at levels of higher educational attainment.
MARDAC, Preliminary Results of the May 1975 AFEES Survey.	1975	AFEES Survey data of non-prior service personnel entering active duty (May 75).	42% indicated "chance to get a college education while in service" strongly influenced enlistment; ranked fourth on list of 14. 28% indicated G.I. Bill; ranked 9 on list of 14 (total sample). Of all deterrent contingencies listed, elimination of G.I. Bill ranked first on list of 9 items; 21% of enlistees claimed non-enlistment in absence of G.I. Bill.
TRADOC, TRADOC Educational/Vocational Opportunities Survey (TEVOS).	1975	Survey of 2,681 Army enlisted personnel (random) at 10 selected installations (April-May 75).	69% of personnel cited "promise that a soldier would be able to further his education while on active duty" as a definite factor in enlistment (reenlistment) decision; E1-E4 personnel and first-term personnel proportionately higher.
USAREC, Army REcruit Probe Survey (8).	1975	Survey of 1,648 Army recruits entering or leaving the DEP and recruits entering active duty in June 1975.	45% of all recruits indicated G.I. Bill was "firm part of enlistment contract". 23% of all recruits indicated they would cancel if G.I. Bill was terminated; percentages increase among recruits at higher levels of intelligence and educational achievement.

SURVEYS DESIGNED TO SPECIFY MOTIVATORS FOR ENLISTMENT HAVE CONSISTENTLY DEMONSTRATED THE RELATIVE IMPORTANCE OF EDUCATIONAL INCENTIVES duty -- but it is also a benefit which may be used while *on* active duty in pursuance of "advanced education and training". The problem lies in the fact that even separate listings of "opportunity for advanced education", "opportunity for training", and "eligible for the G.I. Bill" do not necessarily indicate either exclusive or inclusive definitions. Even "learn a trade or skill valuable in civilian life" is not clearly distinctive in meaning from the possible reasons attributed to qualification for the G.I. Bill. Termination of the G.I. Bill would, for example, affect the opportunities for trade or skill training currently available -- both directly, by reducing available support for training (other than MOS training) and indirectly, by reducing the opportunities for supportive education such as PREP, OJT, higher education courses, or correspondence school.

The Imputed Effect of G.I. Bill Termination

Previous attitudinal surveys which specify the relative influence of *motivators* for enlistment among both potential and actual recruits are available for evaluation. Statistical inference alone, however, cannot estimate the effects of G.I. Bill *termination* on Service accessions.

The problem of predicting changes in enlistment behavior is further complicated by the absence of a suitable precedent for analysis and the nature of the historical environment. In fact, interest in the G.I. Bill was minimal until discussions of the All Volunteer concept.[1/] In 1963, the Department of Defense actually opposed the reinstitution of Cold War G.I. Bill educational benefits -- on the grounds that such benefits would severely hamper retention programs (U.S. Congress, "Cold War G.I. Bill", 1963, pp. 27-28). The G.I. Bill was viewed as a negative influence on the maintenance of a quality force. To accommodate the Pentagon, eligibility was extended to soldiers after they had completed two years of active duty (later reduced to 180 days) so that there would not necessarily be an incentive to leave the military (Starr, 1973, p. 238). Even the Gates Commission, which launched the volunteer force, exhibited indifference to the possible influence of G.I. Bill incentives on enlistment rates (U. S. President's Commission on an All Volunteer Armed Force, 1970).

[1/] Ironically, Title 38, United States Code, Veterans Benefits, (Chapter 34) lists "enhancing and making more attractive service in the Armed Forces of the United States" as the first "Purpose" of education programs created under the G.I. Bill (38 USC§1651).

Interest in the G.I. Bill and other educational benefits as enlistment incentives was restimulated by the "Youth in Transition" and Gilbert Youth Research Surveys -- in which several education-related experimental incentive concepts were shown to have high degrees of potential attraction.[1] Nevertheless, the major issue here was how educational benefits could be increased or modified to attract quality accessions. *The question of termination was never addressed as a part of the transition from war to peace and draft to volunteer force.*

The philosophical justification and possible impact of G.I. Bill termination (in the peacetime *all*-volunteer environment) first received attention in the 1973 Interagency Task Force Report on the "The G.I. Bill and the All Volunteer Force." The OMB-led Task Force recommendation for the discontinuance of veterans' educational benefits prompted several additional attempts to measure the effects of termination on volunteer accessions (e.g., Department of Defense, 1973; Eisenman, 1973). The primary basis for computation in these papers, however, was previous survey data -- *collected in an environment of continuing and expanding benefits* -- and from which only broad confidence interval estimates could be made.

Although previous literature does provide a substantial amount of information regarding the importance attributed to educational benefits by potential enlistees,[2] the utility of such information for the purposes of this research is limited. Questions regarding individual interpretations of G.I. Bill benefits and the possible effects of a "contraction" of educational incentives have never been adequately explored.

In order to specifically address these issues, a systems perspective of the educational benefits question was adopted.

1/ As Johnston and Bachman note: "Nonetheless, we were singularly impressed by one finding. Considering the first choice of respondents, one incentive stands out above all others: 'The government agrees to pay for up to four years of college ... in return for four years of active duty.' This was selected by a margin of 4 to 1 over the second-ranked incentive, military pay comparable to civilian pay" (1970, p. 40).

2/ Appendix B also summarizes previous relevant studies on the "quality" individual, motivational evidence (relating to educational incentives), and the enlistment decision process.

THE APPROACH: SYSTEMS MODELING

Often it is neither possible, nor desirable, to determine the impact of some policy action on a particular system through direct experimentation on the system itself. In such cases, it is usually possible to construct a *model* of the system upon which the appropriate experimentation can then be performed.

Models, however, are of necessity only incomplete representations of the systems they are intended to proxy. This becomes particularly true when the system to be modeled is quite large (as is the case in the Educational Benefits Analysis). The effect of terminating G.I. Bill educational benefits can be modeled at a highly *aggregate* level -- the four Service Branches, or the Department of Defense -- or at a very fine *disaggregate* level -- that is, the individual's own particular set of personal characteristics, and their relationship to the incentive and motivational structure of enlistment/reenlistment decisions.

There are distinct advantages to models constructed at each of these levels of aggregation. *Macro* models, by dealing with statistical aggregation, lend themselves to a quantification of the overall impact of termination policy. The Educational Benefits Model (EBM) was designed for this study to facilitate analysis of the impact of terminating post-service educational benefits on various populations. The impact was then assessed for DoD as a whole, each Service separately, for race, and high school performance levels.

Although such macro analyses can calculate the dimensions of the problem, correlated *micro* analyses are required for more penetrating estimations of problem area causes and solutions. In dealing at the level of the individual, for example, one can more fully comprehend the structure of incentive appeal among similar groups of potential enlistees -- and thereby design an appropriate educational benefits program to attract target populations.

While the macro and micro models were essentially independent in structure, however, they should not be viewed in an either/or context. In fact, each was used as a check on the results generated by the other. This mutually enhancing relationship between the two models is depicted in Figure 1.1.

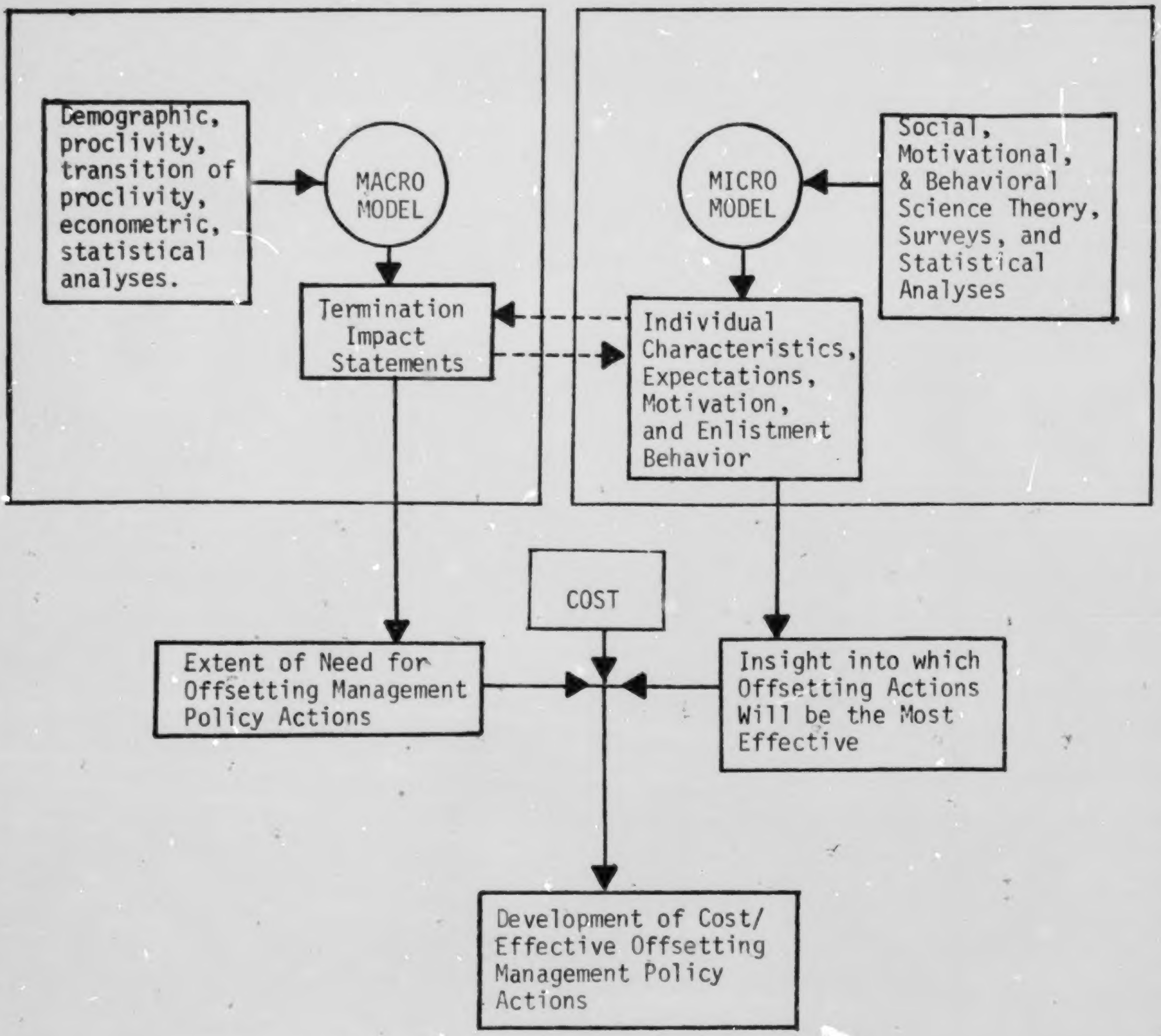
Demographic, proclivity, transition of proclivity, econometric, statistical analyses.
MACRO MODEL
Termination Impact Statements
MICRO MODEL
Social, Motivational, & Behavioral Science Theory, Surveys, and Statistical Analyses
Individual Characteristics, Expectations, Motivation, and Enlistment Behavior
COST
Extent of Need for Offsetting Management Policy Actions
Insight into which Offsetting Actions Will be the Most Effective
Development of Cost/Effective Offsetting Management Policy Actions

Figure 1.1 Interdependence of Macro and Micro Models in The Educational Benefits Analysis

Chapter 2

ENLISTMENT MOTIVATION: *Micro Analysis*

METHODS FOR MODELING ENLISTMENT MOTIVATION

Methods for determining the impact of educational benefits policy may include controlled experimentation and the examination of historical evidence. There is no previous recruiting environment which parallels present conditions for termination, however, and experimentation on the system is neither feasible nor particularly desirable. In the absence of such methods, therefore, two phases of micro-analysis -- concept and organization -- were developed and applied to evaluate motivational and behavioral patterns.

The Concept of Motivation as It Relates to Educational Benefits

Measuring the impact of the G.I. Bill and its alternatives implies the ability to predict behavioral change -- that is, the various modifications in behavior which can be expected to occur in either the presence or absence of those incentives.

It is generally acknowledged that motivation is crucial for behavioral change. It is often conceptualized as an "enduring energy system" of needs, drives, or motives which impel and sustain responsiveness. Incentive theories of motivation assume that this responsiveness can be changed and, in effect, determined by reinforcement conditions. Since the individual behaves largely in anticipation of reinforcing consequences, therefore, motivation can be regulated through the *arrangement of incentive conditions*.

The number and variety of motivating conditions which may influence enlistment decisions received considerable attention when discussions of the modern All-Volunteer Force first began.[1/] Statements regarding the effects of certain incentives should presuppose an understanding of the processes of behavioral change, however, and the *relative importance* of

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[1/] During the draft era, mandate was used in place of motivation as the primary regulator of enlistment behavior. Accessions above the basic core number of highly self-motivated enlistees were entered through conscription. The issue of creating *increased interest* among *potential* quality recruits was not a major policy concern.

certain inventives in causing enlistment. Simplistic evaluations of enlistment behavior often occur in the absence of such understanding, and certain incentives are erroneously identified as singular determinants of behavior: e.g., a "quality" man enlists in the Army because he wants to be eligible for G.I. Bill benefits when his term of service ends. Broad generalizations such as this, nevertheless, are incomplete descriptions of the true situation.

For each individual, a variety of factors must be at work -- and each, to varying degrees, may influence or motivate enlistment behavior. A multidimensional function, $Y = f(x_1, x_2, x_3, \ldots x_n)$ -- where Y represents enlistment behavior and x_1 to x_n represent a set of positive and negative influences on the enlistment decision -- is required to represent the relationship of motivating factors to the enlistment decision. G.I. Bill benefits may interact with other motivators to create a complex of reasons for enlistment -- e.g., furtherance (and postponement) of education, career development, job dissatisfaction, civilian insecurity, financial needs, upward mobility, personal advancement, etc. These factors, when combined, can produce a need situation strong enough to induce enlistment and result in a successfully completed term of service as goal-directed activity (education with educational assistance). Acting as enlistment incentives, therefore, educational benefits will combine with other personal, individual drives and perceptions to create the "motivating situation" -- as depicted in Figure 2.1.

The Organization of a Micro Model

With a basic understanding of the multifarious dimensions and interacting variables of enlistment motivation, one can proceed to define those elements which fit into the categories of the educational motivating situation -- specifically, by *establishing relationships* among incentives and *organizing individuals* into homogeneous groups. To achieve this end, analysis undertook both the grouping and scaling of Service incentives (*vis-a'-vis* the G.I. Bill) and the grouping and scaling of

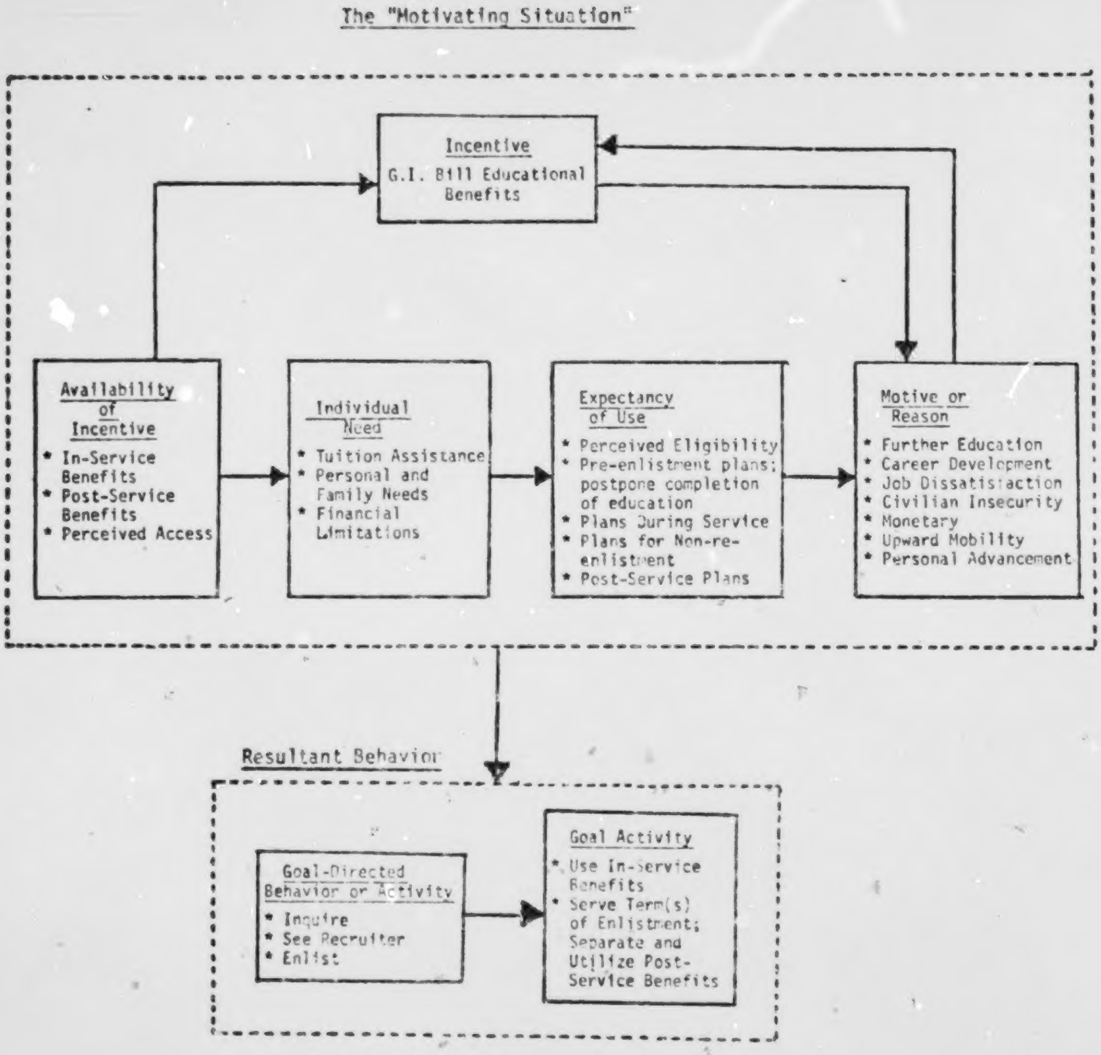

Figure 2.1 Educational Benefits as Enlistment Incentives

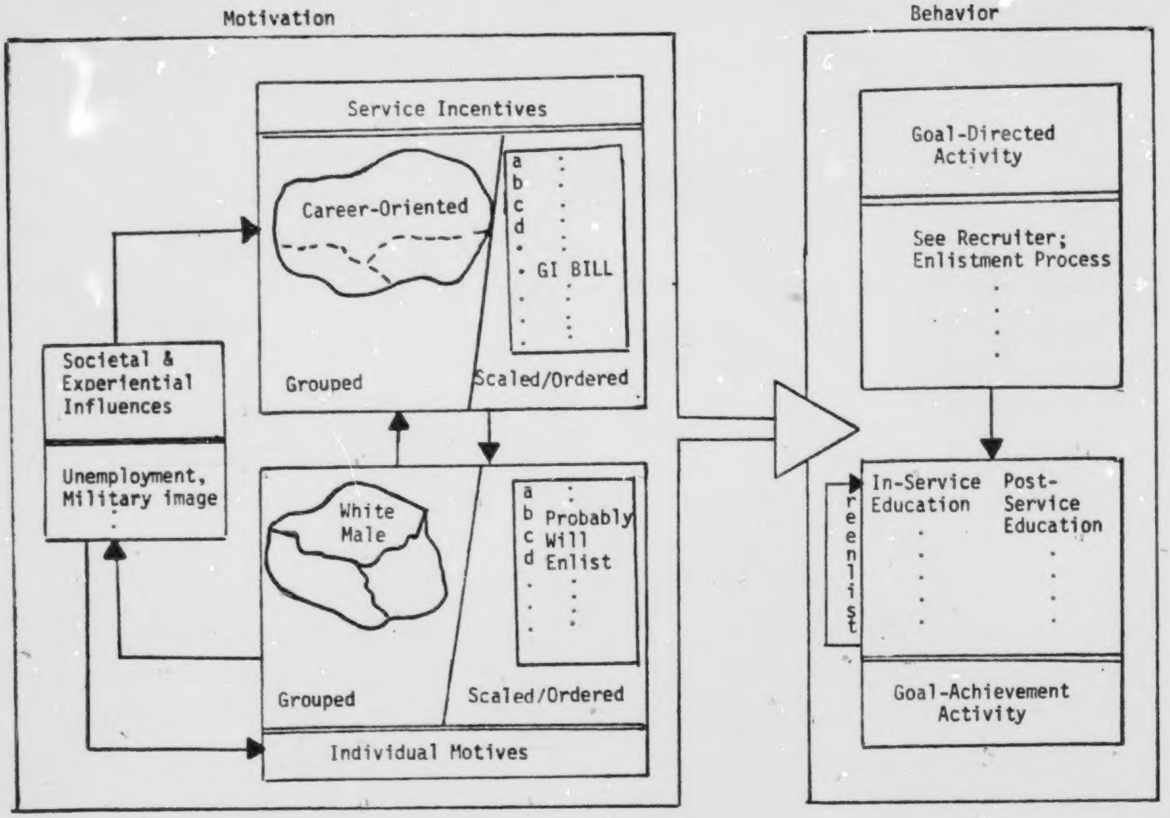

Figure 2.2 The Organization of Enlistment Motivation

DISAGGREGATE BEHAVIORAL CHANGE CAN BE EVALUATED THROUGH THE ORGANIZATION OF INCENTIVES AND INDIVIDUAL'S MOTIVES individuals (according to enlistment motivations). The analytical model for this phase of research is depicted in Figure 2.2.

By organizing incentives and individuals into groups and scales, insights were obtained regarding the degree of influence of educational benefit alternatives *within the set of incentives* and *upon different sets of individuals*. The organization was accomplished by applying statistical models to quantitative attitudinal data. The statistical techniques chosen for this micro analysis were Automatic Interaction Detector (AID) for grouping individuals; Factor Analysis for grouping incentives; and basic crosstabulations, reinforced by Exploratory Data Analysis and Guttman Scaling, for ordering. The data sources were attitudinal surveys and the National Longitudinal Study (NLS) (described in Appendix C).

A final major point is that longitudinal studies have been particularly helpful in tracing the individual's conversion from attitude to behavior. This conversion from attitude to behavior and to changes in attitude usually involves more complex processes than are readily apparent in the results of cross-sectional surveys. An additional longitudinal perspective forms the conclusion of this chapter, therefore, to examine retroactive attitudinal change among first-term Service personnel and to link reenlistment intentions with original enlistment motivation.

ORGANIZATION OF INCENTIVES

Grouping of Incentives

A Factor Analysis was designed to identify a grouping of reasons for enlistment among new recruits. The data were survey responses to a question, listing fourteen possible reasons for enlistment, which appeared on the May 1975 Armed Forces Entrance and Examination Stations (AFEES) questionnaire.[1] For each reason, the enlistee indicated the extent of influence on the decision to enlist, using the following five-point scale: very much, fairly much, some, little, and none. Factor analysis was used to group the fourteen possible reasons for enlistment among enlistees entering the Services, and to identify the common structure of incentive appeal between Services.

For each Service cohort, intercorrelation matrices were constructed for the fourteen item responses. Intercorrelation matrices were then factor analyzed, using the principal components factor analysis program in the Statistical Package for the Social Sciences (SPSS). Orthogonal varimax rotation of the principal factor solution was then performed for each Service to achieve a working factor structure of incentives. The resulting rotated factor matrix was then analyzed and evaluated for highest factor loadings and interpretatively labeled according to established relationships of strong incentives within each factor solution.[2] Service listings under interpretative labels appear in Tables 2.1 and 2.2; actual Factor value computations appear in Tables 2.3a through 2.3d.

The results of this Factor Analysis suggest several conclusions concerning the current structure of educational benefit incentives for enlistment.

"To become eligible for the G.I. Bill" and "Chance to get a college education while in service" exhibit relatively weak loadings within factor solutions. In no instance may either incentive be said to dominate or prevail among alternative incentives. That is, *educational benefits are not a major incentive factor for any branch of Service.*

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[1] Criterion question: (Q.17) "While making up your mind to enlist, how much did each of these reasons influence you? Indicate the amount of influence for each reason."

[2] A minimum eigenvalue of 1.0 was used as a cut-off point for the selection of factors. This explains why the Marine Corps solution of this data contains only four factors. It should also be noted that the percentage of explained common variance was never less than 7.8 for any factor, and at least 51.6 percent (Marines) of the common variance was accounted for in each of the Service factor solutions.

There are noticeable differences in maximum-strength loadings within Factors (and among the Services) of the two educational incentives. The differences in the partner-incentives with which education benefits received highest weights may be seen in Table 2.2. Maximum weights between the "college education while in service" and "G.I. Bill" incentive categories also differ among factors in the Navy and Marine Corps solutions (as seen in Tables 2.3b and 2.3c). The overall differences in weights between these two incentives was much smaller than had been anticipated.1/ If one is to assume -- from previous related research -- that "advanced education" is equated with "in-service education" by survey respondents,2/ then current research may indicate *increasing associations of in-service educational opportunities with G.I. Bill benefits* (and/or simple increasing patterns of Factor structure). The fact that a *separate* in-service question exists, is suggestive in itself to survey respondents that there is some difference between enlisting to "get a college education in service" and being "eligible for the G.I. Bill". That any similarity in structure should be made -- despite this fact -- is noteworthy.

Previous research also suggests that there may be a *shifting pattern in the general structure of educational enlistment incentives.* Many individuals who previously recognized the attractiveness of the G.I. Bill as an incentive for enlistment conceptualized it as a "personnel benefit" (Fisher and Rigg, 1974). Although G.I. Bill still correlates very well with "pay and benefits" incentives, the association is not as obviously strong as it once was. Similarly, where "opportunity for advanced education" was once highly

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1/ Studies by Fisher and Rigg (1974), Fisher and Harford (1974), and Kriner, Orend, and Rigg (1975) of survey data through 1973 suggested primary differences in interpretations of "G.I. Bill" and "opportunity for advanced education" by Service enlistees. The latter study, in fact, hypothesized that "advanced education" could be closely associated with in-service opportunities -- while the G.I. Bill was more exclusively a post-service benefit.

2/ An alternative theory of interpretation could be that a distinction is made in the level of education implied by "advanced education" -- or that there is widespread lack of knowledge concerning the extent of G. I. Bill benefits.

Table 2.1 Enlistment Incentive Factors by Services

Enlistment Incentive Factors (Interpretive Labels)	Corresponding Order 1/			
	Army	Navy	Marine Corps	Air Force
Travel and Excitement	1	1	2	1
Career Development	2	2	1	4
Job Dissatisfaction	3	3	3	2
Civilian Insecurity	4	5	4	5
Monetary	5	4	N/A	3

1/ cf. Tables 2.3a through 2.3d for complete breakout of incentive weights by factors.

Table 2.2 Position of Educational Benefit Incentives Within Factors

Enlistment Incentive Factor (Interpretive Labels)	POSITION OF EDUCATIONAL BENEFITS INCENTIVES WITHIN FACTORS							
	ARMY		NAVY		MARINE CORPS		AIR FORCE	
	GI Bill	In Service College	GI Bill	In Service College	Bill	In Service College	Bill	In Service College
Travel and Excitement	6	7	4 *Highest Loading*	6	5	7	4	7
Career Development	4 *Highest Loading*	3 *Highest Loading*	6	5	6	5 *Highest Loading*	5	3
Job Dissatisfaction	6	4	5	3 *Highest Loading*	10	6	4	3
Civilian Insecurity	10	13	13	14	2 *Highest Loading*	7	12	13
Monetary	4	6	5	4	N/A	N/A	3 *Highest Loading*	4 *Highest Loading*

EDUCATIONAL BENEFITS ARE
NOT A MAJOR INCENTIVE FACTOR

Table 2.3a

Factor Analysis of Incentives

BASE: Army (AFEES, May, 1975)

Incentives	Factors				
	1	2	3	4	5
A. To do something different.	.56	.17	.07	.19	.002
B. *To become eligible for the G.I. Bill.*	.23	.26	.10	.09	.23
C. To learn a skill.	.25	.64	-.03	.08	.08
D. To travel and see the world.	.60	.11	.04	.11	.13
E. For the pay and benefits.	.27	.04	.02	.07	.61
F. To serve my country.	.47	.09	.06	-.12	.22
G. Didn't like the job I had.	.09	.03	.57	.10	.01
H. To prepare for a later civilian job.	.02	.68	.03	.13	.10
I. I was tired of going to school.	.08	.03	.04	.44	.06
J. No good civilian jobs were available.	-.11	.10	.15	.41	.27
K. I wasn't sure what I wanted to do.	.11	.09	.16	.61	-.01
L. No chance for promotion in my civilian job.	.04	.05	.74	.18	.09
M. *Chance to get college education while in service.*	.17	.30	.15	-.03	.19
N. To be able to support myself or family.	.06	.19	.03	.10	.47
Eigenvalue	2.97	1.57	1.25	1.15	1.14
Percent of variance accounted for	21.2	11.2	8.9	8.2	8.1
Cumulative percent of variance accounted for	21.2	32.5	41.4	49.6	57.7

Table 2.3b

Factor Analysis of Incentives

BASE: Navy (AFEES, May 1975)

Incentives	Factors				
	1	2	3	4	5
A. To do something different.	.64	.05	.14	-.11	.26
B. *To become eligible for the G.I. Bill.*	.35	.12	.19	.21	.002
C. To learn a skill	.23	.65	.01	.10	.03
D. To travel and see the world.	.45	.16	-.05	.08	.17
E. For the pay and benefits	.32	.06	-.02	.52	.12
F. To serve my country	.45	.02	.06	.17	-.03
G. Didn't like the job I had.	.05	-.01	.60	.02	.12
H. To prepare for a later civilian job.	.02	.64	.04	.14	.09
I. I was tired of going to school.	.09	.04	.04	.04	.39
J. No good civilian jobs were available	-.19	.12	.12	.39	.45
K. I wasn't sure what I wanted to do	.15	.02	.21	.05	.39
L. No chance for promotion in my civilian job.	.04	.03	.58	.07	.16
M. *Chance to get college education while in service.*	.28	.15	.32	.24	-.12
N. To be able to support myself or family	.09	.16	.11	.51	.08
Eigenvalue	2.84	1.46	1.35	1.17	1.09
Percent of variance accounted for	20.3	10.4	9.6	8.4	7.8
Cumulative percent of variance accounted for	20.3	30.7	40.3	48.7	56.4

Table 2.3c

Factor Analysis of Incentives

BASE: Marine Corps (AFEES, May 1975)

Incentives	Factors			
	1	2	3	4
A. To do something different	.13	.42	.10	.19
B. *To become eligible for the G.I. Bill.*	.26	.33	.05	.38
C. To learn a skill	.63	.27	.06	-.05
D. To travel and see the world	.15	.54	.06	.13
E. For the pay and benefits	.39	.36	.06	.36
F. To serve my country	.12	.54	.03	-.08
G. Didn't like the job I had	.01	.14	.60	.14
H. To prepare for a later civilian job.	.59	.03	.05	.18
I. I was tired of going to school	.04	.10	.01	.31
J. No good civilian jobs were available	.22	-.09	.17	.43
K. I wasn't sure what I wanted to do	.05	.04	.18	.37
L. No chance for promotion in my civilian job	.12	.04	.81	.14
M. *Chance to get college education while in service.*	.35	.23	.10	.20
N. To be able to support myself or family	.48	.22	.01	.22
Eigenvalue	3.38	1.50	1.23	1.11
Percent of variance accounted for	24.2	10.7	8.8	7.9
Cumulative percent of variance accounted for	24.2	34.9	43.7	51.6

Table 2.3d

Factor Analysis of Incentives

BASE: Air Force (AFEES, May 1975)

Incentives	Factors 1	2	3	4	5
A. To do something different	.64	.13	.02	.09	.14
B. *To become eligible for the G.I. Bill.*	.26	.15	.29	.12	.003
C. To learn a skill	.21	.003	.10	.60	.01
D. To travel and see the world	.55	.001	.14	.03	.10
E. For the pay and benefits	.23	.05	.58	-.02	.11
F. To serve my country	.34	-.03	.27	.15	-.15
G. Didn't like the job I had	.09	.66	.06	.02	.09
H. To prepare for a later civilian job	-.02	.08	.10	.69	.03
I. I was tired of going to school	.06	-.01	.01	-.02	.35
J. No good civilian jobs were available	-.16	.20	.26	.09	.42
K. I wasn't sure what I wanted to do	.12	.16	-.01	.02	.55
L. No chance for promotion in my civilian job	.03	.64	.16	.08	.14
M. *Chance to get college education while in service.*	.15	.15	.29	.22	-.06
N. To be able to support myself or family	-.01	.07	.53	.12	.07
Eigenvalue	2.68	1.58	1.32	1.16	1.12
Percent of variance accounted for	19.1	11.3	9.4	8.3	8.0
Cumulative percent of variance accounted for	19.1	30.4	39.8	48.2	56.2

correlated with career opportunities and valuable trades or skills, i.e., Career Development (Fisher and Harford, 1974, pp. 20-23; Kriner, Orend and Rigg, 1975, pp. 26-27), the same association of "college education in-service" is not as obvious in current analysis.

Scaling of Incentives

Educational benefits policy could be greatly simplified if each individual responded literally in the sense of a "hierarchy of needs," and one could discern precisely where G.I. Bill motivators appear in each potential enlistee's pyramid or ladder of incentive needs.[1/] If there were such a perfect ordering, it might also be possible to isolate those individuals who view educational benefits as *the one* incentive to cause enlistment.

The incentives presented in Table 2.4 appear to be well-ordered. However, this ordering is in *aggregate* form and does not represent the *one-by-one* importance of incentives to the individual. A statistical test -- Guttman Scaling -- is available to evaluate whether a set of questions can, in fact, be "scaled". Guttman Scaling was applied to enlistment incentives, therefore, in an effort to determine if typical pyramidal patterns exist among the various reasons for enlistment. The results shown in Table 2.5 verify that no typical order of incentives operates for potential enlistees.

Until a hierarchy of enlistment incentives can be sorted for various populations, attempts to develop micro analyses will be incomplete. One workable alternative is to place a particular incentive in focus and subordinately group other incentives in a corresponding manner. Table 2.4 singles out G.I. Bill interest and subordinates other incentives to the G.I. Bill termination question. Its major point is that G.I. Bill seekers are quite similar to enlistees in general -- except that G.I. Bill seekers have a greater interest in in-Service education and a

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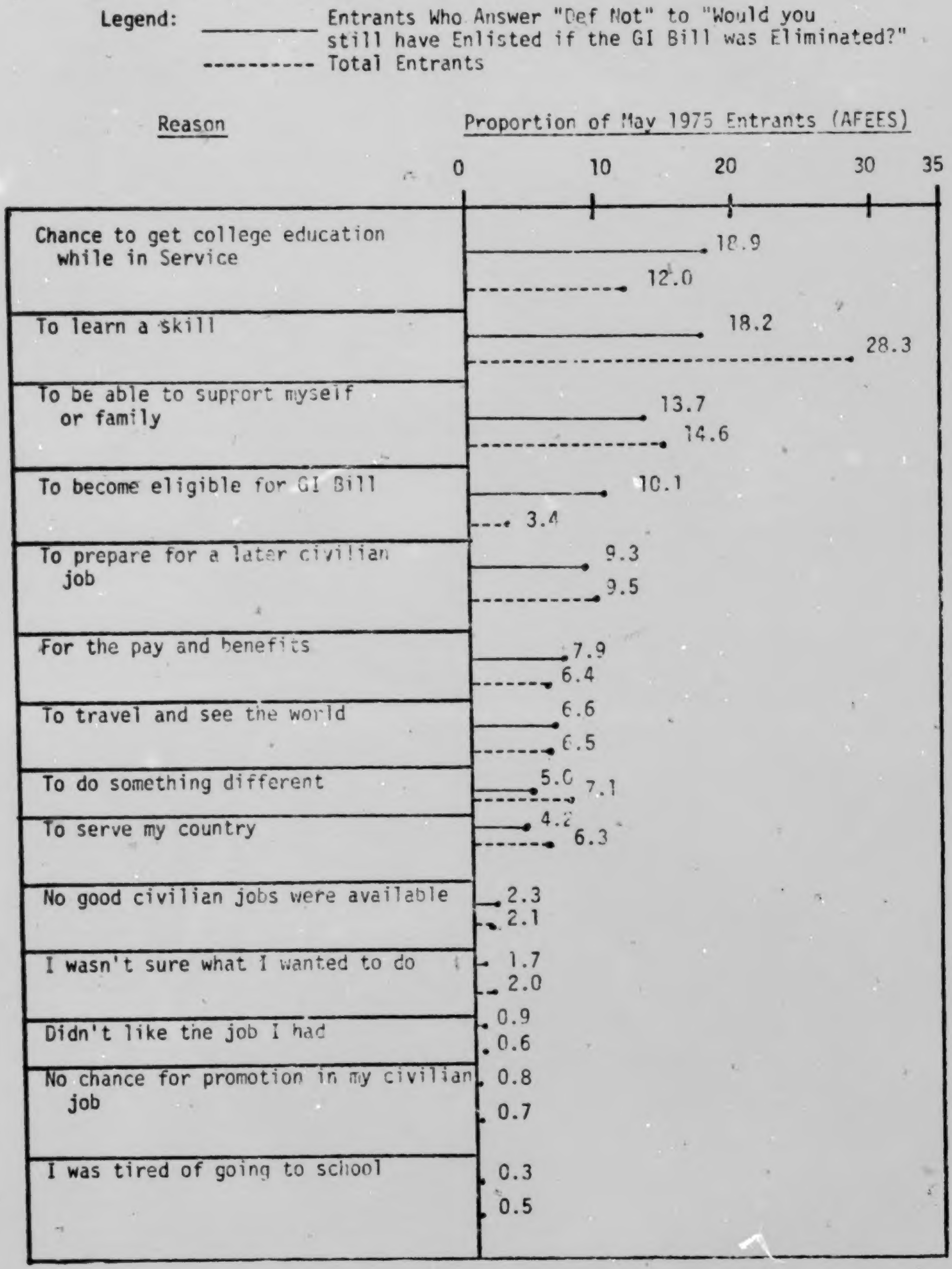
[1/] cf, for example, the work of Abraham Maslow, especially Motivation and Personality (1970).

(somewhat surprising) lesser interest in skill training. The latter point suggests that the G.I. Bill has a special role in attracting a share of high quality personnel to combat arms skills.

A third approach to scaling, as shown in Tables 2.6 and 2.7, sheds light on the relation between motivators and deterrents. A correlation was computed between the importance for being positively influenced by G.I. Bill eligibility cited by enlistees, and against enlisting if the G.I. Bill had been terminated prior to actual enlistment. The correlation value of -.46, although numerically larger than four similar pairings, is not particularly strong. Thus *endorsement* of the G.I. Bill does not correlate strongly with *deterrence* in the event of termination.

Table 2.4

What Best Describes Why You Are Entering Military Service?



G.I. BILL SEEKERS ARE COMPARABLE TO THEIR PEERS IN OTHER MOTIVATORS

TABLE 2.5

Guttman Scaling of Incentives

Source: NLS base year and first followup study of High School seniors, restricted to those who planned to enlist; twelve incentives measuring "very" versus "somewhat or not" important in helping decide to enter.

Procedure: SPSS Scalogram Analysis: Subprogram Guttman Scale

Statistical Result

- G.I. Bill was 5th most cited of 12 incentives.
- College-in-Service was 6th most cited.
- 3% cited G.I. Bill but 0 other incentives.
  8% cited G.I. Bill with 1 or 2 other incentives.
  15% cited G.I. Bill with 3 or 4 other incentives.
  13% cited G.I. Bill with more than 4 other incentives.
  39%
- Minimum marginal reproducibility = .7247.
- Percent of scaling improvement = .0821.
  - Coefficient of scalability = .2982.

Interpretation

- Reinforces the "secondary" role of educational benefits incentives.
- In-Service education is on the heels of G.I. Bill as an incentive.
- Where the G.I. Bill is cited, it is most often part of a coalition of 3 or more other incentives.
- There is a generous tendency to endorse incentives as "very important".
- Incentives tend strongly not to line up in the same priorities for different people.

Table 2.6 Strength of Enlistment Motivators

Motivator	Mean Score (No Importance 0 – Very Important 4)	S.D.
To learn a skill	3.5	0.96
For pay & benefits	3.0	1.01
To prepare for a civilian job	2.9	1.30
To be able to support myself or family	2.9	1.43
To travel and see the world	2.8	1.22
To serve my country	2.7	1.15
Chance to get college education in Service	2.7	1.42
To do something different	2.6	1.32
To become eligible for the G.I. Bill	2.3	1.44
No good civilian jobs available	1.8	1.56
I wasn't sure what to do	1.4	1.40
No chance for promotion in present job	1.1	1.47
Didn't like the job I had	1.0	1.40
I was tired of going to school	0.6	1.17

Source: May 1975 AFEES survey

ON AVERAGE FOR ALL INDIVIDUALS, THE G.I. BILL IS A SECONDARY MOTIVATOR

Table 2.7 Consistency between Motivators and Deterrents

MOTIVATOR	DETERRENT	CORRELATION COEFFICIENT
Pay & Benefits	PX Privileges Cancelled	-0.10
Pay & Benefits	Pay Cut $50/Month	-0.06
G.I. Bill Eligibility	G.I. Bill Cancellation	-0.46
Couldn't Find Work	Found Civilian Job	-0.27
Wanted to Serve Country	War Was Declared	+0.34

Source: Individual answers to the May 1975 AFEES survey.

ENDORSEMENT OF THE G.I. BILL DOES NOT CORRELATE WITH DETERRENCE IN THE EVENT OF TERMINATION

ORGANIZATION OF INDIVIDUALS

Grouping of Individuals

Assessment was focused on the question: *Whom does the G.I. Bill affect in the marketplace?*

Answers to this question were sought through investigation of the response patterns of the prospective enlistees in the NLS Base Year sample. The object was to identify those characteristics in a respondent's background that best predicted how strongly the G.I. Bill was valued in the course of an enlistment decision. "Characteristics" were chosen from a variety of personal and socio-economic attributes: parents' income and education, family size, race, size of community, intended branch of service, etc. Throughout this part of the analysis, the key variable is that percentage of the population being considered which rated G.I. Bill eligibility as a very important part of its enlistment decision. The results among several groups of people are summarized in Table 2.8.

Table 2.8

G.I. Bill Importance for Several Groups of People

Classification	Proportion who said the G.I. Bill was a very important incentive
0. Overall	39%
1. Educational Level Student Plans to Attain	
Graduate from a Junior College	67%
Graduate from a four-year College	49%
Finish High School but no further	21%
2. Parents' Income	
$7500 to $8000	56%
$10,500 to $12,000	40%
over $18,000	29%
3. Race	
Black	57%
Mexican-American	50%
White	36%
4. Intended Service	
Marines	47%
Army	42%
Air Force	36%
Navy	36%
5. Grades	
Mostly B's through mostly C's	40%
Mostly A's through 1/2 A's and 1/2 B's	37%
1/2 C's and 1/2 D's through mostly below D	36%

THE IMPORTANT SEPARATORS OF G.I. BILL INTEREST ARE EDUCATIONAL PLANS AND RACE; LESS IMPORTANT ARE INTENDED SERVICE AND GRADES.

Since grades and intended branch of Service show little fluctuation within classes, it follows that this information offers little explanation as to an individual's G.I. Bill interest. Each characteristic of Race, Income and Educational-Level Planned, on the other hand, clearly differentiates between high-interest and low-interest individuals -- i.e., they contain substantial explanatory power.

For a more penetrating and objective investigation of the explanatory powers, the aggregate interaction of these variables and G.I. Bill interest was measured by use of the Automatic Interaction Detector (AID) technique. The output is schematized in the diagrams that follow. Though there are a number of ways of interpreting AID diagrams, the most relevant to this case is simply to consider the attribute used in forming the two "children-groups" as the attribute which best differentiates the G.I. Bill interest level of the "parent-group". These AID evaluations, diagrammed as Figures 2.3 through 2.7, have an interesting pattern as to those characteristics which have large enough explanatory power to show up in the first levels of differentiation. In all cases except the Marine Corps prospects, educational plans are the overriding characteristic which distinguishes G.I. Bill seekers from their peers, followed by socio-economic status and peer influence.[1/] There is also a message in the omitted characteristics, notably that G.I. Bill seekers are like their peers in school grades and as to preferred branch of Service. Although race is important and does enter the Army sort, the racial difference is overshadowed by educational plans and socio-economic status in the total picture.

[1/] It should be noted that age differentiation was not considered here since the populations were all HS seniors.

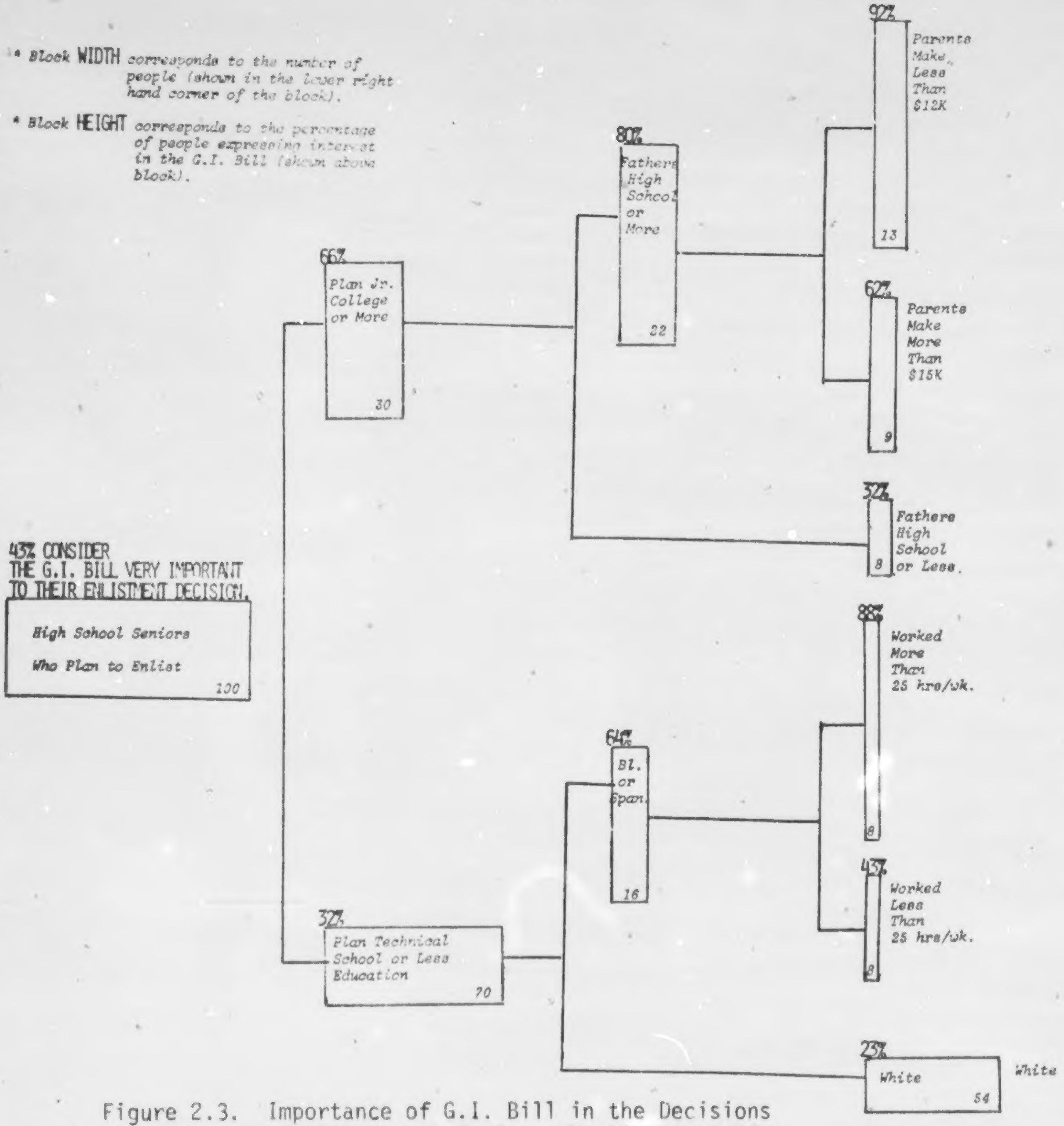

* Block WIDTH corresponds to the number of people (shown in the lower right hand corner of the block).
* Block HEIGHT corresponds to the percentage of people expressing interest in the G.I. Bill (shown above block).
43% CONSIDER THE G.I. BILL VERY IMPORTANT TO THEIR ENLISTMENT DECISION.
High School Seniors Who Plan to Enlist
100
66%
Plan Jr. College or More
30
32%
Plan Technical School or Less Education
70
80%
Fathers High School or More
22
32%
Fathers High School or Less.
8
64%
Bl. or Span.
16
23%
White
54
White
92%
Parents Make Less Than $12K
13
62%
Parents Make More Than $15K
9
88%
Worked More Than 25 hrs/wk.
8
43%
Worked Less Than 25 hrs/wk.
8

Figure 2.3. Importance of G.I. Bill in the Decisions of High School Seniors Who Plan to Enlist in the ARMY

THE ARMY-UNIQUE FEATURE
IS THAT RACE ENTERED AS
A THIRD LEVEL SORT

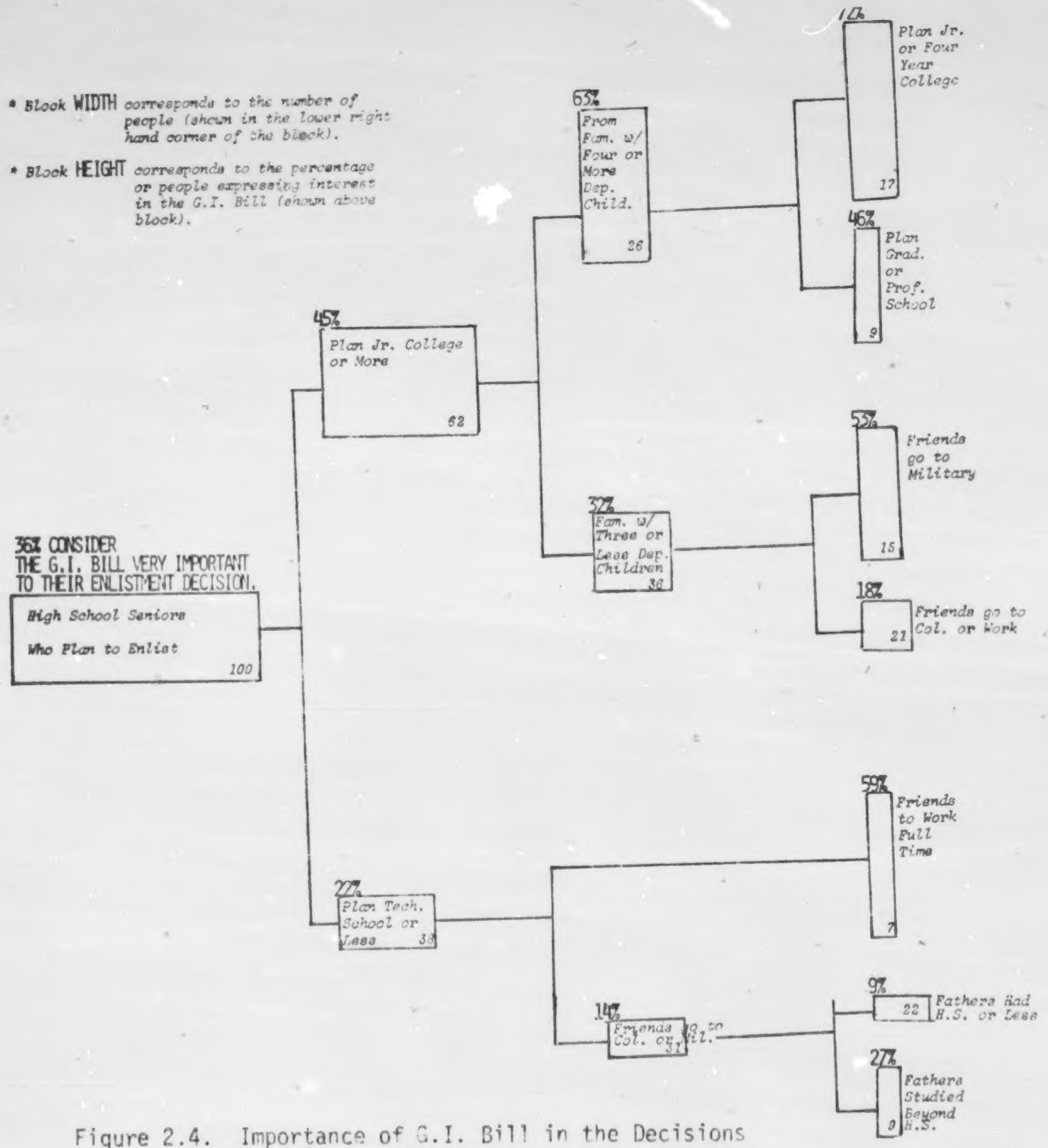

• Block WIDTH corresponds to the number of people (shown in the lower right hand corner of the block).
• Block HEIGHT corresponds to the percentage or people expressing interest in the G.I. Bill (shown above block).
36% CONSIDER THE G.I. BILL VERY IMPORTANT TO THEIR ENLISTMENT DECISION.
High School Seniors Who Plan to Enlist 100
45% Plan Jr. College or More 62
27% Plan Tech. School or Less 38
63% From Fam. w/ Four or More Dep. Child. 26
32% Fam. w/ Three or Less Dep. Children 36
12% Plan Jr. or Four Year College 17
46% Plan Grad. or Prof. School 9
53% Friends go to Military 15
18% Friends go to Col. or Work 21
59% Friends to Work Full Time 7
14% Friends go to Col. or Mil. 31
9% Fathers Had H.S. or Less 22
27% Fathers Studied Beyond H.S. 9

Figure 2.4. Importance of G.I. Bill in the Decisions of High School Seniors Who Plan to Enlist in the NAVY

THE NAVY FEATURE IS PARENTAL AND PEER INFLUENCE

- **Block WIDTH** corresponds to the number of people (shown in the lower right hand corner of the block).
- **Block HEIGHT** corresponds to the percentage of people expressing interest in the G.I. Bill (shown above block).

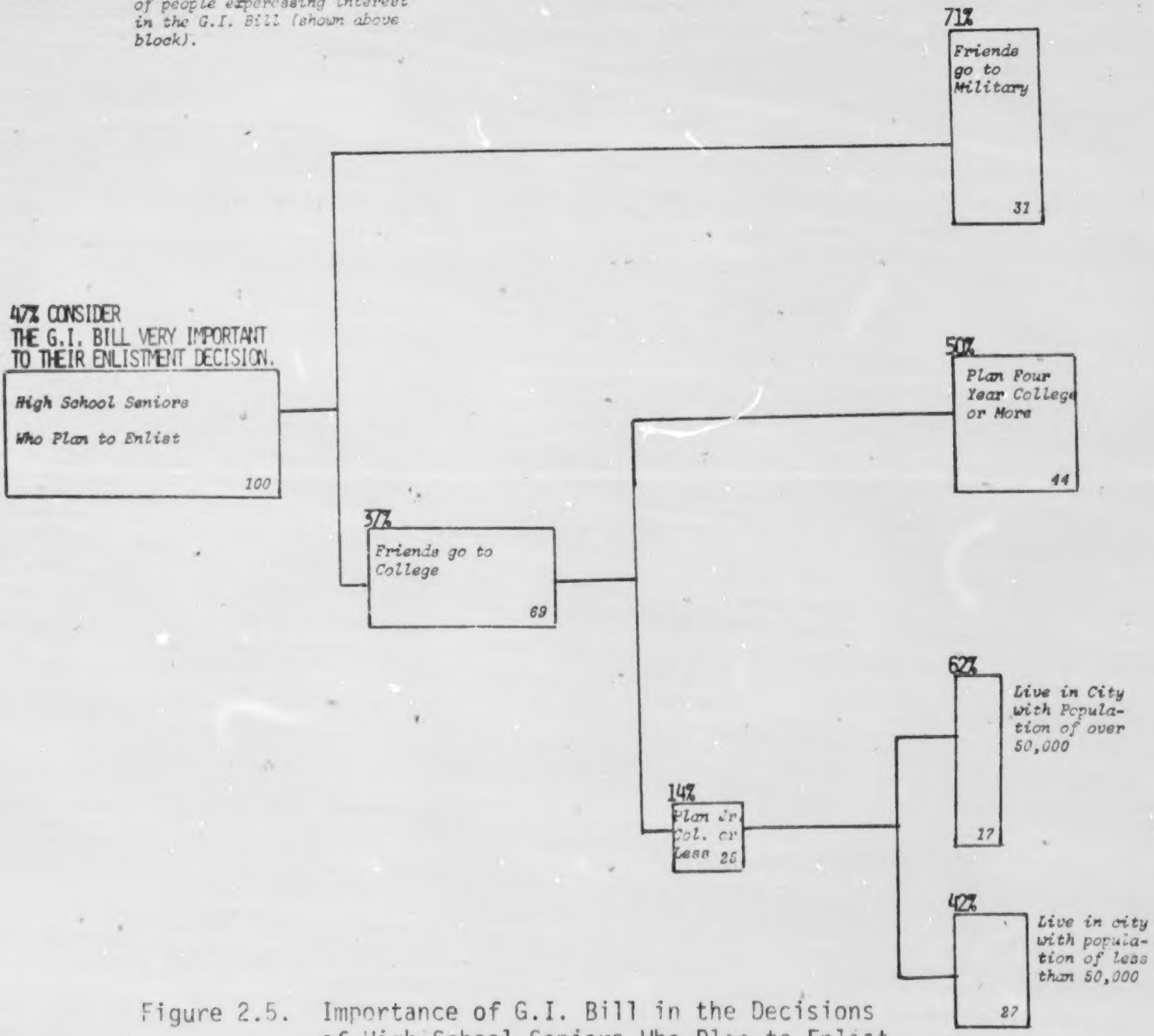

47% CONSIDER THE G.I. BILL VERY IMPORTANT TO THEIR ENLISTMENT DECISION.
High School Seniors Who Plan to Enlist
100
71%
Friends go to Military
31
37%
Friends go to College
69
50%
Plan Four Year College or More
44
14%
Plan Jr. Col. or Less
25
62%
Live in City with Population of over 50,000
17
42%
Live in city with population of less than 50,000
27

Figure 2.5. Importance of G.I. Bill in the Decisions of High School Seniors Who Plan to Enlist in the MARINE CORPS

ONLY THE MARINE CORPS
HOLDS EDUCATIONAL PLANS
BACK TO SECOND-LEVEL
IMPORTANCE

- *Block* **WIDTH** *corresponds to the number of people (shown in the lower right hand corner of the block).*
- *Block* **HEIGHT** *corresponds to the percentage of people expressing interest in the G.I. Bill (shown above block).*

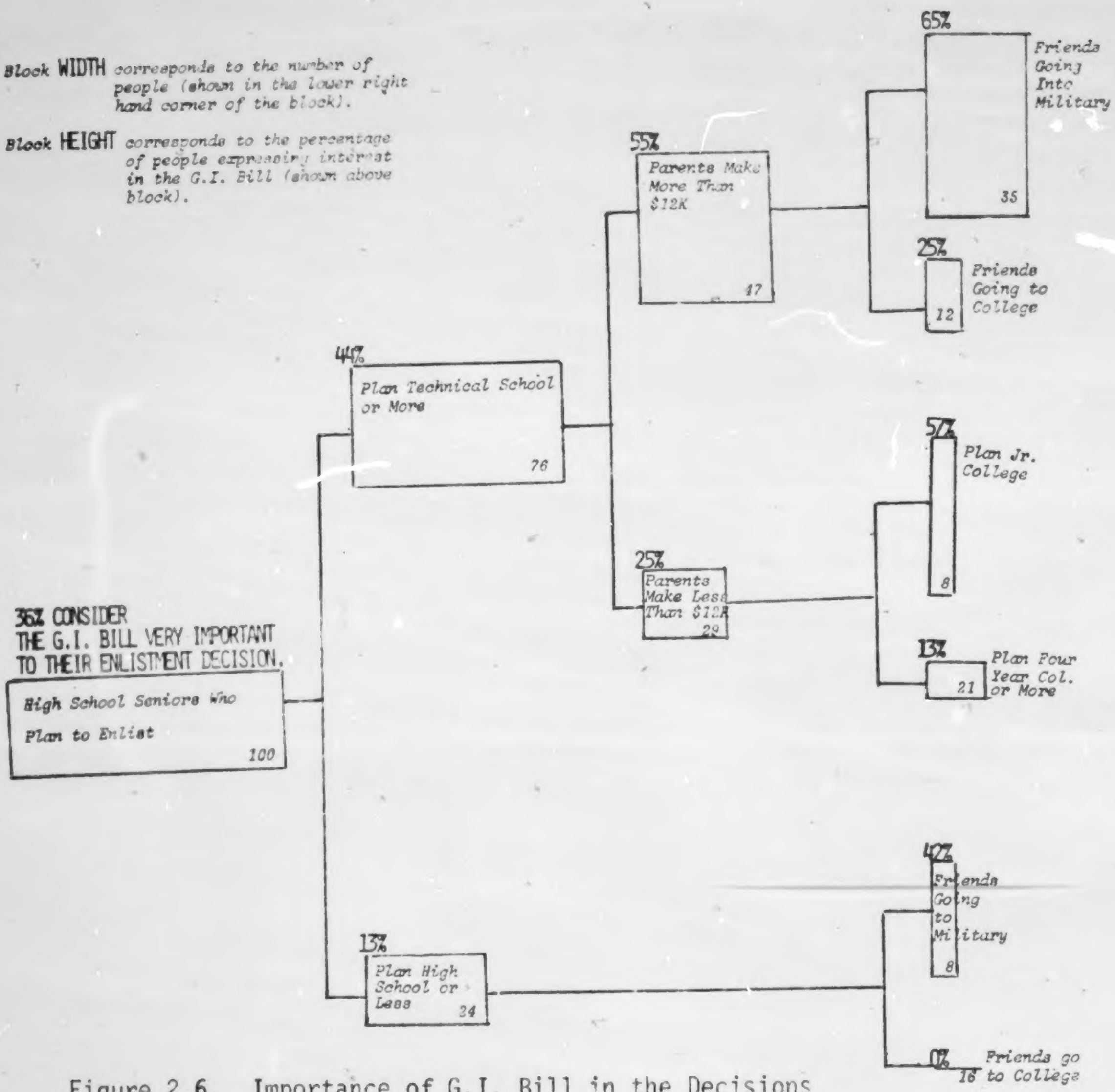
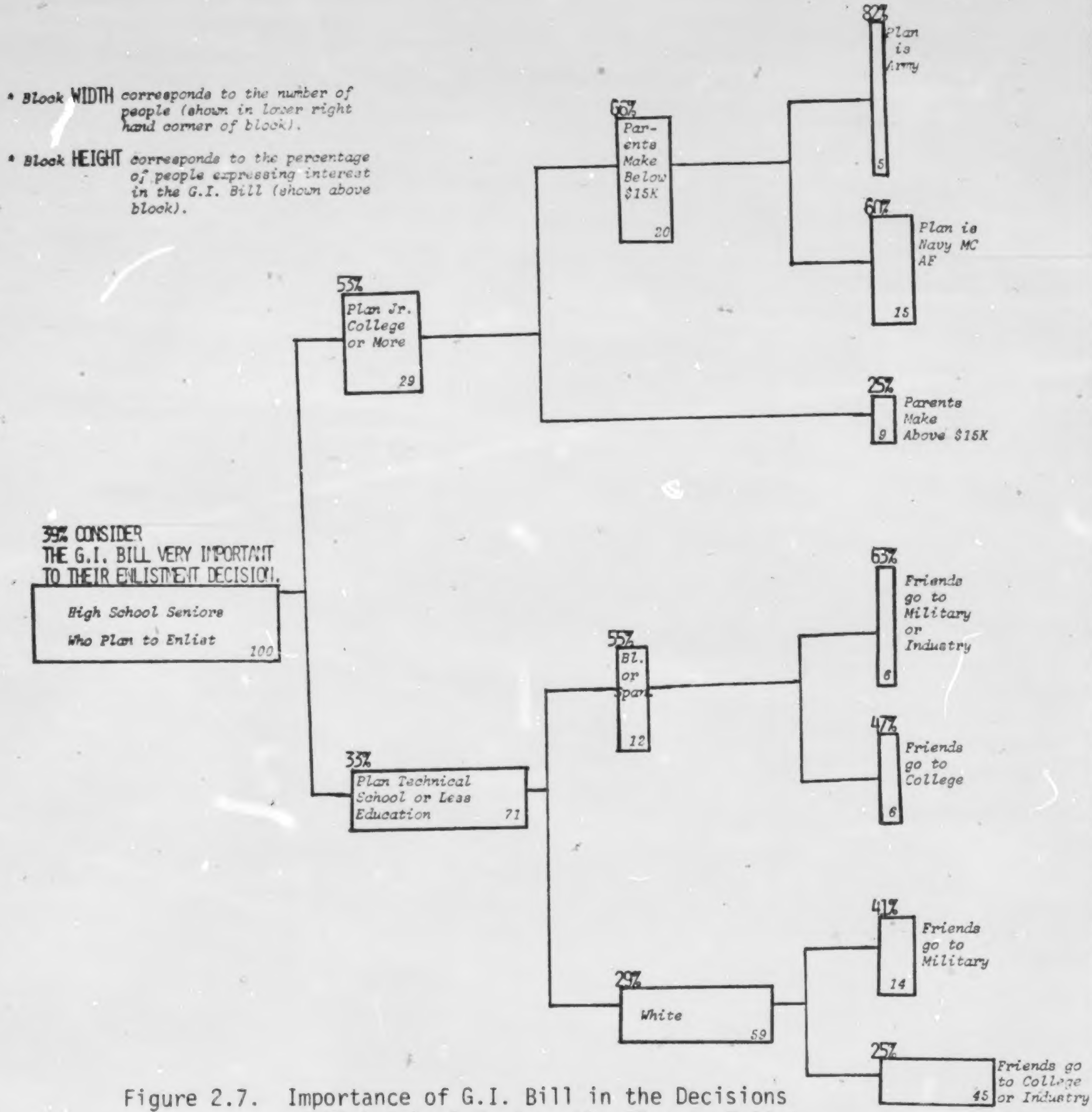


Figure 2.6. Importance of G.I. Bill in the Decisions of High School Seniors Who Plan to Enlist in the AIR FORCE

THE AIR FORCE AND NAVY STATE SLIGHTLY LOWER G.I. BILL IMPORTANCE THAN M.C. AND ARMY



* **Block WIDTH** corresponds to the number of people (shown in lower right hand corner of block).
* **Block HEIGHT** corresponds to the percentage of people expressing interest in the G.I. Bill (shown above block).

Figure 2.7. Importance of G.I. Bill in the Decisions of High School Seniors Who Plan to Enlist (All Services Combined)

* THE LARGER GROUPS ARE LESS G.I. BILL MOTIVATED (THE WIDER RECTANGLES ARE SHORT)
** SERVICE DIFFERENCES ARE MINIMAL

Scaling Individuals

For enlistment discussions, the ideal method to scale individuals would be a waiting line -- with those who are more reluctant in the rear. With some degree of confidence, this lineup has been achieved through the Educational Benefits (macro) Model (Chapter 3). There,the lineup of potential enlistees is estimated through the "Proclivity Derived Queue" computation which transforms proclivity attitudes into positions in the queue.

The essential feature of the queue model arises directly from the motivation concept of this chapter. This model of motivation assumes that attitude can be measured; a parallel measurement of incentive appeal can be made; and, that these two tracks can be combined to transform attitude (proclivity) to behavior (queue position). Therefore, the starting point for scaling individuals is their stated military inclination.

Figure 2.8 shows degrees of military inclination for four cases: FY74 and FY76 entrants, with and without the assumption of termination. The results indicate that negative attitudes regarding military Service have declined substantially, and that the hypothesized termination of the G.I. Bill might cause military disinclination to climb back to the levels of FY74.

The information to construct Figure 2.8 was derived from the May 1973 and the May 1975 Gilbert Youth Surveys of proclivity for enlistment. These attitude measures capture the pulse of the population who are eligible for military service.[1/] The respondents place themselves in one of five "attitude toward enlistment" categories: definitely not, probably not, don't know, probably will, or definitely will.

Figure 2.8 was derived as follows. An individual who stated "definitely not" was placed at the far left of the index scale. To this group were added those responding "probably not;" resulting in a "probably not enlist, or lower" group. Next, the "don't know" group was added, followed by the "probably yes" group (who are still counted as "possibly non-

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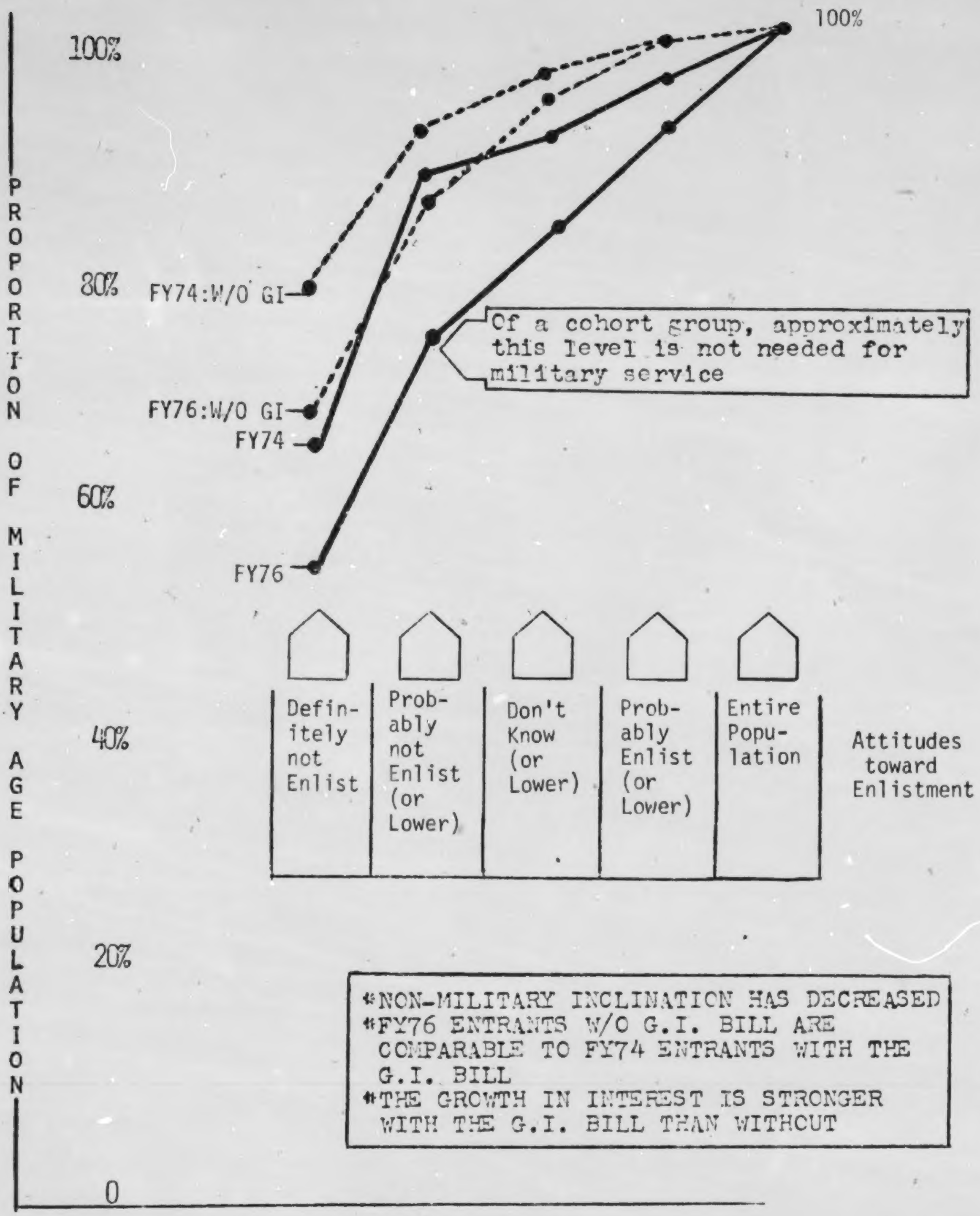
[1/] In this sense, the total scenario of the military image, civilian alternatives, perceptions of military opportunities, and advertising are captured in this proclivity vector.



Of a cohort group, approximately this level is not needed for military service

- *NON-MILITARY INCLINATION HAS DECREASED
- *FY76 ENTRANTS W/O G.I. BILL ARE COMPARABLE TO FY74 ENTRANTS WITH THE G.I. BILL
- *THE GROWTH IN INTEREST IS STRONGER WITH THE G.I. BILL THAN WITHOUT

Figure 2.8. Degrees of Non-Military Inclination

SOURCE: May 1973 & May 1975 Gilbert Surveys
(See text for exact interpretation)

military"). While this cumulative indexing has recognizable imperfections, it does allow a full view of degrees of non-military inclination, especially helpful for comparison purposes.

Next, a corresponding distribution was constructed after an assumed G.I. Bill termination. Respondents were asked to adjust their proclivity toward the military, if necessary, to reflect their new attitude under the assumption of termination. In so doing, a fair percentage of individuals seemingly improved their proclivities under the hypothesized termination. In order to correct for this anomaly, such individuals were constrained to their originally stated proclivities. (Many of these individuals had quite logically said "Don't know" as a reaction to G.I. Bill termination after having earlier said "I will (probably) not enlist.") After this "diagonalization", the G.I. Bill termination information was treated in the same manner as the original proclivities, to generate its cumulative index of non-military inclination.

REENLISTMENT INTENT VERSUS ORIGINAL ENLISTMENT MOTIVE

Three questions led to an examination of the role of the G.I. Bill in the decisions of *first-term* enlisted personnel. First, how important was the G.I. Bill in the individual's final enlistment decision, according to retrospective survey responses? Second, how much counterbalancing impact has the G.I. Bill in creating *greater* enlistment demands as a negative influence on retention? And, third, what is the trend, over time, in reenlistment decisions and their relation to the G.I. Bill?

To provide answers to these questions, data were extracted from the 1973 in-service Survey of Enlisted Personnel, and Exploratory Data Analysis procedures were applied. Table 2.9 (a-c) shows pertinent results.[1]

For the first question -- retrospective importance applied to the G.I. Bill in an individual's enlistment decision -- Table 2.9a indicates that the G.I. Bill is approximately in the middle (879) of selected single reasons for enlistment. The proportion who select the G. I. Bill -- 879/5793 = 15.2% -- is also consistent with the set of impact estimates presentedin Chapter 3. Thus, according to this information, G.I. Bill termination might be expected to deplete every sixth or seventh potential enlistee.

The counterbalancing impact of the G.I. Bill, through lower reenlistments, is also apparent in this data. *Table 2.9b shows that the odds against reenlistment are far greater among G.I. Bill seekers than among any of the six other motivation groups.* In fact, for G.I. Bill seekers the odds are 7.58 to 1 against reenlistment -- whereas the odds for other groups are in the range of 2.90 through 0.63 to 1.[2]

---

[1] The "effects analysis" in Table 2.9 is a simple and relatively new procedure, described in the subsequent discussion.

[2] The measure of adverse odds was chosen because Exploratory Data Analysis suggested that this provided a better fit than the more customary measure, the probability of probably reenlisting.

Further clarification concerning the counterbalancing effect of the G.I. Bill upon reenlistments can be found in Table 2.9c. In this "effects analysis" the G.I. Bill effect is seen to *add* 5.10 to the overall odds of 2.48 -- giving anti-reenlistment odds of 7.58. A comparison of the G.I. Bill with the other six principal motivators shows that the G.I. Bill is conspicuous as a negative inducement to reenlistment.

The row effects in Table 2.9 indicate that people in the first year of service (0-1 case) tend to say they will reenlist more than do persons in the following years; with a definite reenlistment adversity (4.52) in the second year of service. This merely reaffirms known reactions to military life. However, the departures or *residuals* from the pattern are rather revealing. For example, the residuals on the G.I. Bill seekers are much more pronounced than for any other principal enlistment incentive. The residual of -1.91 in the first year suggests that G.I. Bill seekers are more positively motivated when they first enlist. This is consistent with the otherwise paradoxical motivation of G.I. Bill seekers: Why should a person who wants to attend college enter the Service in the first place -- unless the individual desires only to postpone further education? Thus, that individual might seem more favorable to the military (lower non-reenlist odds) at first, but progressively becomes eager to leave. Another way of observing this rather intricate phenomenon is to note that for this data, the overall odds are 2.48 to 1 against reenlistment; while among G.I. Bill seekers, the odds are 5.10 more than that, or 7.58 against reenlistment; and finally, among G.I. Bill seekers who have started their fourth year of service, the odds are another 0.92 + 0.30 greater, or 8.30. (Thus the original entry is decomposed as the sum of the common value plus the column effect plus the row effect plus the [interaction] residual.)

Table 2.9b also shows that G.I. Bill seekers are almost diametrically opposed to "advanced education" seekers in the lineup of reenlistment odds. Those who chose "advanced education" in the forced choice against "G.I. Bill" must be more career oriented and satisfied that they can advance academically in-Service.

These measurements seem to dramatically support the intuitive hypothesis that the G.I. Bill negatively influences reenlistments. It can

Table 2.9

Reenlistment Intent vs First Reason for Entry into the Military

a. Counts. **First Reason for Entry Into the Military (Retrospective Appraisal)**

YOS	Probably Reenlist	G.I. Bill	Skill	Travel	Like Guns	Patriotism	Advanced Education	Pay	Total
0-1	**Yes**	20	139	89	17	67	169	32	533
	No	97	208	140	26	54	131	18	674
1-2	**Yes**	36	136	98	28	111	145	43	597
	No	355	396	272	44	146	203	51	1,467
2-3	**Yes**	35	101	116	14	119	114	35	534
	No	238	300	214	40	176	103	16	1,087
3-4	**Yes**	10	39	75	12	76	65	24	301
	No	88	165	161	21	96	62	7	600
		879	1,484	1,165	202	845	992	226	5,793

b. Odds of not reenlisting

YOS	G.I. Bill	Skill	Travel	Like Guns	Patriotism	Advanced Education	Pay	Total
0-1	4.85:1	1.50:1	1.57:1	1.53:1	0.81:1	0.78:1	0.56:1	1.26:1
1-2	9.86:1	2.91:1	2.78:1	1.57:1	1.32:1	1.40:1	1.19:1	2.46:1
2-3	6.80:1	2.97:1	1.84:1	2.86:1	1.48:1	0.90:1	0.46:1	2.04:1
3-4	8.80:1	4.23:1	2.15:1	1.75:1	1.26:1	0.95:1	0.29:1	1.99:1

c. Row & Column Effects & Residuals (Effect Analysis)

YOS	G.I. Bill	Skill	Travel	Like Guns	Patriotism	Advanced Education	Pay	Row Effect	Row Fit
0-1	-1.91	-0.58	+0.30	+0.42	+0.41	+0.59	+0.75	-0.82	1.66
1-2	+1.76	-0.52	+0.17	-0.88	-0.42	-0.13	+0.04	+0.52	3.00
2-3	-0.77	+0.08	-0.24	+0.94	+0.27	-0.10	-0.16	-0.01	2.47
3-4	+0.92	+1.02	-0.24	-0.48	-0.26	-0.36	-0.64	+0.30	2.78
Column Effect:	+5.10	+0.43	-0.39	-0.55	-1.26	-1.47	-1.85	2.48 (Common value)	
Column Fit:	7.58	2.90	2.09	1.93	1.22	1.01	0.63		

Source: 1973 DoD InService Survey Form B.

- * SOME 15% OF FIRST-TERMERS RECALL THE G.I. BILL AS A FIRST REASON FOR ENTRY
- * THE ODDS AGAINST REENLISTMENT ARE 2.5:1 OVERALL, BUT 7.6:1 FOR G.I. BILL SEEKERS

easily be calculated from Table 2.9 that elimination of the G.I. Bill might increase the pool of potential first-reenlistments by 12 percent. Yet, when quality reenlistment applicants in the appropriate skills exceed reenlistment quotas for those skills, as is currently the case, this 12% boost for those skills is not needed.

Chapter 3

Queue Estimates: *Macro Analysis*

STRUCTURE AND LOGIC

Model Overview

The Educational Benefits Model (EBM) was designed to serve as an operational vehicle for evaluating various educational benefits policy alternatives in terms of their impact on the overall effectiveness of the military force. A conceptual representation of the EBM is presented in Figure 3.1.

Data Base

The model has been designed to process census data using both the Gilbert Surveys of Youth and the National Longitudinal Study (NLS). Efforts were directed at evaluating the impact of eliminating post-Service educational benefits on the accession "queue." The Gilbert survey provides current proclivity assessments which take the total scenario into account, and the NLS gives the factors which convert each proclivity cell into a queue of real prospects. Since the NLS was conducted at the end of the draft era, removal of draft-motivated persons left a set of prospects who had the new all-volunteer incentives and yet requirements exceeded supply (so that the queue was fully visible).

Model Logic

The EBM, as indicated in Figure 3.2, proceeds through five input processing steps, incorporating information from various Gilbert Surveys and the NLS, as needed.

In Step 1, Census data was used to assemble an "initial" (i.e., prior to entry into the military) population of male High School graduates along the dimensions of age, race, and high school grades. This population was further distributed in the fourth dimension of proclivity according to the May 1975 Gilbert Omnibus Survey.

Table 3.1 EBM Population Parameters

DIMENSION	PARAMETER VALUES	
Age	17 - 18, 19 - 25	
Race	Caucasian, Other	
HS Grades	A&B, B&C, D& Below	
Proclivity	GILBERT: Definitely Yes Probably Yes Probably No Definitely No No Plans, N/A	NLS: Intend to Serious Might Definite No No Plans, N/A

In Step 2 of processing, a "shredder" (derived from the 1974 Gilbert Survey) was applied to the initial populations to distribute potential enlistees by "intended branch of Service."

Step 3 required an actual "merge" of the Gilbert and NLS data bases. While Gilbert provided current estimates of the initial population and the "intended branch of Service", the NLS was required in order to translate *expressed intentions* into *actual enlistments*. The two surveys were essentially compatible along the age, race and HS grade dimensions. However, the proclivity wordings were different enough to require a translation matrix. This was calibrated on their common 1972 populations.

With the proclivity translation accomplished, Step 4 was the application of a matrix of transition probabilities (derived from the NLS) to the initial population in order to arrive at an "intended branch of Service" queue.

The final step of model logic consisted of applying a "cross-elasticity matrix" from NLS (which showed the shift from the intended branch to one of the other branches) to the "intended branch of Service" queue to arrive at the final flow of individuals toward each of the Services.

This concluded the input-processing phase of the EBM. Outputs from the model consist of summary and detailed statements which indicate the impact of termination of post-service benefits on the various population sub-groups. The Gilbert termination losses were adjusted by a constant factor to make total losses agree with the econometric estimate (Chapter 3, "Methods for Measuring Termination Impact")--to recognize that Gilbert proclivity shifts were somewhat biased.

Model Assumptions

The principal operating assumption inherent in the EBM is that the proclivity distribution (i.e., the distribution of individuals according to their attitudes toward the Military) accurately reflects the total "tenor of the times". The most important advantage of adopting this approach is that it then becomes unnecessary to attempt to disentangle the complex of factors (e.g., unemployment, National posture, etc.) which combine to influence accession flows. Instead, the proclivity distribution, at any point in time, is taken to capture the net result of all of the factors impinging upon the enlistee at that time.

Two assumptions are implicit in the formulation of the EBM. One is that the formula which was used to convert from the Gilbert to the NLS proclivity language is valid. The other is that the transition probabilities (Step 4) for a given proclivity, age, race, and high school grade combination remain constant over time.

A major assumption was made to the effect that older men (19-25) who replied "definitely not" to the enlistment question are even less likely to enlist than the 17-18 year olds (NLS) who made the same response. Based roughly on quarter-of-entry data, it was assumed that the older "definitely not" enlistment rate was half that of the younger "definitely not".

Another assumption in the EBM is that the "intended branch of Service" distribution (i.e., Step 2 in the model logic) for non-Caucasians is *insensitive* to High School grades. This assumption was necessary because the non-Caucasian sample size was not large enough to permit this detailed a sub-categorization (the proclivity and age categorizations were maintained, however).

Finally, termination losses among grades and two among Services were adjusted in four cells, when application of the econometric adjustment to a cell brought that cell higher after termination than before.

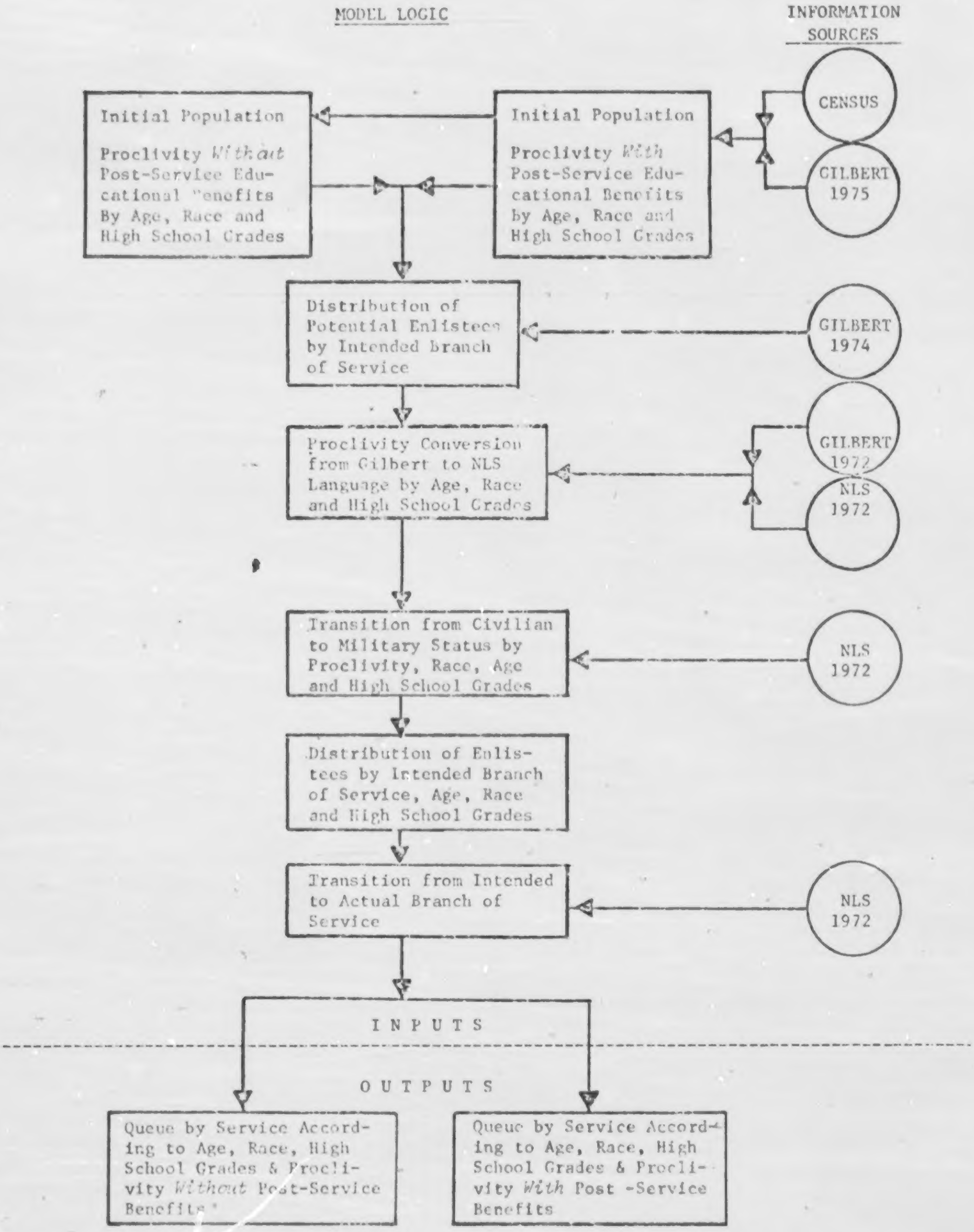

MODEL LOGIC
INFORMATION SOURCES
Initial Population Proclivity *Without* Post-Service Educational Benefits By Age, Race and High School Grades
Initial Population Proclivity *With* Post-Service Educational Benefits by Age, Race and High School Grades
CENSUS
GILBERT 1975
Distribution of Potential Enlistees by Intended Branch of Service
GILBERT 1974
Proclivity Conversion from Gilbert to NLS Language by Age, Race and High School Grades
GILBERT 1972
NLS 1972
Transition from Civilian to Military Status by Proclivity, Race, Age and High School Grades
NLS 1972
Distribution of Enlistees by Intended Branch of Service, Age, Race and High School Grades
Transition from Intended to Actual Branch of Service
NLS 1972
INPUTS
OUTPUTS
Queue by Service According to Age, Race, High School Grades & Proclivity *Without* Post-Service Benefits
Queue by Service According to Age, Race, High School Grades & Proclivity *With* Post -Service Benefits

FIGURE 3.1. EBM INFORMATION SOURCES AND MODEL LOGIC

INFORMATION IS AVAILABLE TO ESTIMATE QUEUES FROM PROCLIVITIES

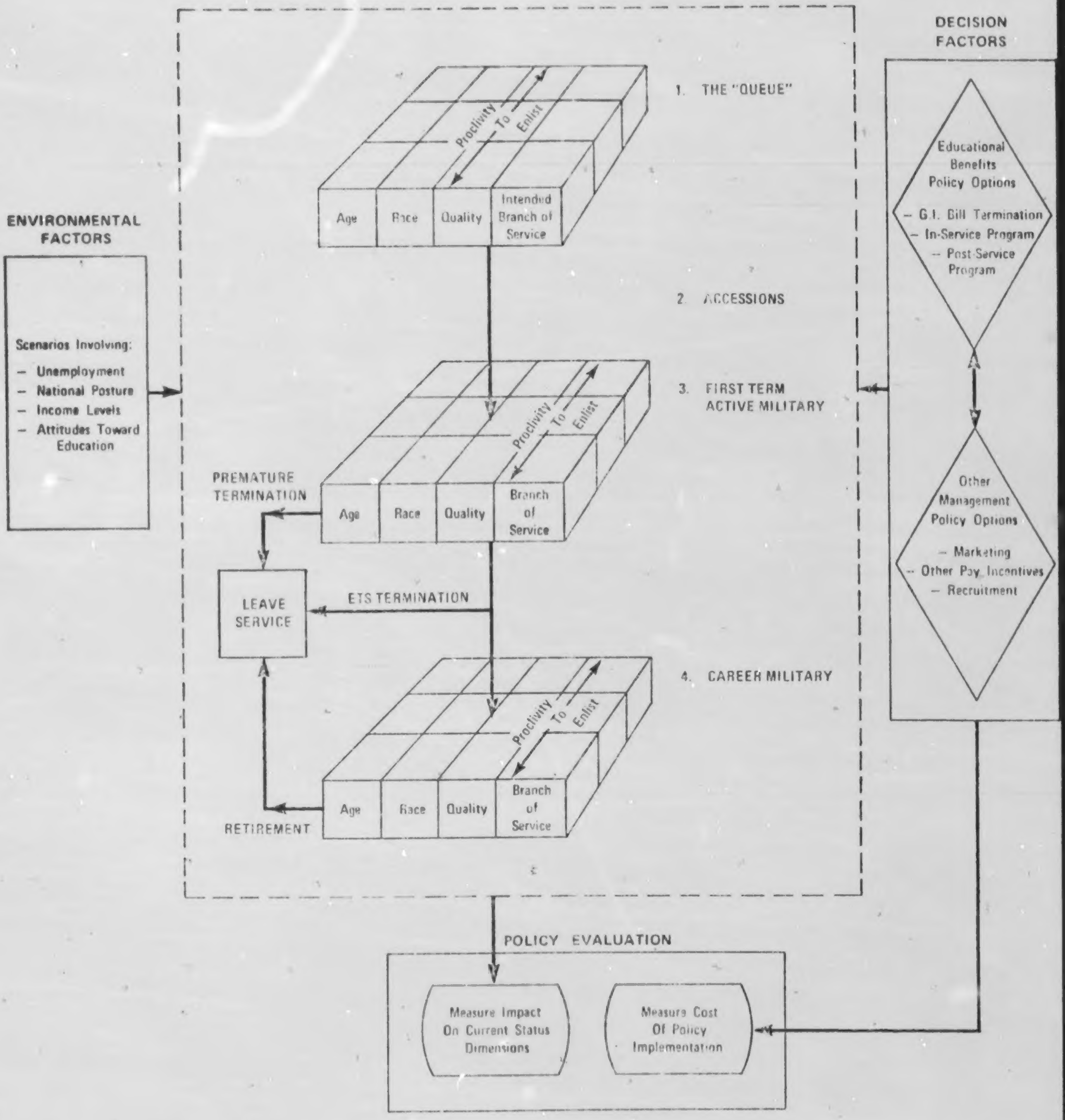


FIGURE 3.2. EDUCATIONAL BENEFITS MODEL

VALIDATION OF TERMINATION IMPACT

Central to this study is a forecast of the impact of G.I. Bill termination on high school graduate potential enlistees. Because this estimate is vitally important, the following four independent estimation methods were employed and subsequently used as cross-checks on each other:

Empirical Termination Impact in the 1960's

G.I. Bill educational benefits were actually terminated for Service entrants between the years 1955 and 1966 (although they were retroactively reinstated). A suitable method for computing the impact which this termination had on enlistments is to replicate the Gates Commission multiple linear regression analyses used to establish the new military pay levels for the All Volunteer Force.1/ The Gates analysis did not use the G.I. Bill termination period, however, in considering effects on enlistment rates.2/ Therefore, the Gates analysis has been replicated with an additional consideration (dependent variable) for G.I. Bill benefits. The results are shown in Table 3.2.

Proclivity Shift in Response to Termination Assumption

How do individuals feel that they would adjust their interest in the military if G.I. Bill educational benefits were terminated? Measurements of this stated proclivity shift are available from two Gilbert Youth Surveys, as recorded in Table 3.3. The Educational Benefits Model (EBM) is designed to compute the impact of termination from these proclivity shifts by processing the adjusted proclivity specification. However, it is not reasonable to assume that the transition probability for a given proclivity level would be the same for the real question of enlistment

---

1/ The independent variables which were used to explain the historical behavior of the enlistment rates can be found in Volume II of the Gates Commission Study (U.S. President's Commission on an All-Volunteer Armed Force, Vol. II, 1970).

2/ Recent discussions with Gates Commission analysts are inconclusive as to whether a conscious decision was made to avoid consideration of the G.I. Bill.

TABLE 3.2 Empirical Impact of G.I. Bill Termination

Statistical Result

- * The G.I. Bill "dummy" has a coefficient of 1.602 with an average (dependent variable) enlistment rate of 5.891.
- * The coefficient of determination increased from 0.58 to 0.72 through introducing the G.I. Bill variable.
- * When the G.I. Bill variable was introduced, the set of significant variables picked up unemployment but dropped relative civilian pay and the Berlin crisis.

INTERPRETATION

- * IN THE 60'S, G.I. BILL TERMINATION IMPACT WAS ABOUT 25%.
- * THE G.I. BILL VARIABLE (THOUGH NOT USED IN THE GATES STUDY) CONTRIBUTES SUBSTANTIAL EXPLANATORY POWER.
- * CONSIDERATION OF THE G.I. BILL IMPACT WOULD HAVE CONCURRENTLY SUGGESTED THE IMPORTANCE OF UNEMPLOYMENT.

Source: The data base of Alan Fechter appearing in "Impact of Pay and Draft Policies on Army Enlistment Behavior," Study 3, Volume I, Studies Prepared for the President's Commission on an All-Volunteer Armed Force, November 1970.

PROCEDURE: Addition of a G.I. Bill dependent variable with value 0 for the termination period of the 3rd quarter of CY 1964 through the 3rd quarter of CY 1968 [where data ended].

under existing circumstances, as it would for the devaluated proclivity statement under hypothetical termination -- recognizing the tendency for bias toward an exaggeration of impact.[1] This recognition led to the idea of averaging the "before and after" statements. The resulting impact is shown in Table 3.4.

Reinforced "A Posteriori" Statements of Termination Impact.

Statements are available, from as recently as May 1975, indicating the influence of G.I. Bill benefits on the enlistment decision of actual recruits. In order to validate the self-stated importance of the G.I. Bill as a motivator, two methods have been employed. For new entrants, the statement "I would not have enlisted were it not for the G.I. Bill" was checked for pairing with the statement "The G.I. Bill was very important in my enlistment decision." The resultant 15% impact is shown in Table 3.5. Another validation check consisted of examining responses to similar questions concerning original enlistment motivation -- after several years of Service experience. These results, as depicted in Table 2.9, also indicate a 15% termination impact.

Econometric Estimate of Impact.

In making an econometric estimate of the impact of the elimination of post-service educational benefits on accessions, a central step is the estimation of the present value of the benefits to the enlistee. One way of making this estimation is to use a survey response from Question 701 of the October 1973 Gilbert Youth Attitude Study which reads:

> Some people have said it would be more
> fair to give all veterans a large sum
> cash payment in place of the G.I. Bill.
> What cash payment do you feel would be
> fair to offer someone to give up his
> G.I. Bill benefits?

---

[1] The logic here is that an individual, in effect, has "nothing to lose" by saying that loss of benefits will affect the enlistment decision, but "everything to lose" by replying in the negative.

TABLE 3.3

Shift in Stated Proclivity in Reaction to G.I. Bill Termination

a. FY74 Entry Group

Stated Proclivity	Stated Proclivity Hypothesizing G.I. Bill Termination					
	Def. Yes	Prob. Yes	Don't Know	Prob. No	Def. No.	TOTAL
Definite Yes	42	16	9	8	25	→ 100%
Probably Yes	2	33	25	16	24	→ 100%
Don't Know	0	0	57	12	31	→ 100%
Probably No	0	6	24	27	43	→ 100%
Definitely No	1	3	20	9	67	→ 100%

b. FY76 Entry Group

Stated Proclivity	Stated Proclivity Hypothesizing G.I. Bill Termination					
	Def. Yes	Prob. Yes	Don't Know	Prob. No	Def. No.	TOTAL
Definite Yes	22	21	12	21	24	→ 100%
Probably Yes	2	34	13	30	22	→ 100%
Don't Know	0	5	49	19	27	→ 100%
Probably No	0	5	5	52	39	→ 100%
Definitely No	0	1	4	7	87	→ 100%

Source: May 73 & May 75, Gilbert.

HYPOTHESIZED G.I. BILL TERMINATION INDUCES ABOUT HALF THE POPULATION TO PLACE THEMSELVES ONE NOTCH LOWER ON THE PROCLIVITY SCALE

Table 3.4 G.I. Bill Termination Impact According to Proclivity Shifts

SERVICE BRANCH: ARMY

AGE	RACE	HS GRADES	BEFORE POL IMP	AFTER POL IMP	PERCENT CHANGE
17-18	CAUC.	A&B	2675	2195	-17.9%
		B&C	7146	5892	-17.6%
		D&F	6515	5059	-22.4%
	OTHER	---	5379	3702	-31.2%
19-25	CAUC.	A&B	20361	13133	-35.5%
		B&C	17247	12358	-28.3%
		D&F	19634	19220	-2.1%
	OTHER	---	21069	15371	-27.0%
TOTAL IMPACT			100025	76931	-23.1%

SERVICE BRANCH: NAVY

AGE	RACE	HS GRADES	BEFORE POL IMP	AFTER POL IMP	PERCENT CHANGE
17-18	CAUC.	A&B	5228	4291	-17.9%
		B&C	10938	9013	-17.6%
		D&F	3787	2940	-22.4%
	OTHER	---	6206	4785	-22.9%
19-25	CAUC.	A&B	21064	13587	-35.5%
		B&C	42944	30771	-28.3%
		D&F	9059	8865	-2.1%
	OTHER	---	10555	8539*	-19.1%
TOTAL IMPACT			109782	82775	-24.6%

SERVICE BRANCH: MARINE CORPS

AGE	RACE	HS GRADES	BEFORE POL IMP	AFTER POL IMP	PERCENT CHANGE
17-18	CAUC.	A&B	5782	4745	-17.9%
		B&C	2873	2368	-17.6%
		D&F	2839	2204	-22.4%
	OTHER	---	2494	2606	4.5%
19-25	CAUC.	A&B	3486	2249	-35.5%
		B&C	5870	4206	-28.3%
		D&F	6130	6001	-2.1%
	OTHER	---	23910	20815	-12.9%
TOTAL IMPACT			53384	45195	-15.3%

SERVICE BRANCH: AIR FORCE

AGE	RACE	HS GRADES	BEFORE POL IMP	AFTER POL IMP	PERCENT CHANGE
17-18	CAUC.	A&B	6923	5683	-17.9%
		B&C	10235	8433	-17.6%
		D&F	3935	3055	-22.4%
	OTHER	---	5639	4862	-13.8%
19-25	CAUC.	A&B	20247	13059	-35.5%
		B&C	31914	22867	-28.3%
		D&F	7076	6927	-2.1%
	OTHER	---	16740	11126	-33.5%
TOTAL IMPACT			102708	76017	-26.0%

PROCLIVITY SHIFTS ESTIMATE OF TERMINATION IMPACT: 23%

Table 3.5 G.I. Bill Termination Impact
According to Reinforced Self-Assessment

(Percent of Enlistees Lost for Each Group
is Shown in its Position)

AGE	RACE	ARMY	NAVY	MARINE CORPS	AIR FORCE	DoD
17-18	White	16.7	8.3	16.7	8.7	12.1
	Other	11.8	15.0	10.1	14.3	12.3
19-25	White	19.0	11.5	13.4	14.5	15.2
	Other	17.4	15.7	22.4	18.8	18.1
Service	Total	17.8	11.3	15.5	13.5	14.8

Source: Computed from May 1975 AFEES Survey, by dividing the total entry population of each cell into those who stated both that they were strongly motivated to enlist by the G.I. Bill and they would definitely be deterred from enlistment without it.

REINFORCED SELF-ASSESSMENT ESTIMATE OF
TERMINATION IMPACT: 15%

Assuming that the responses constitute a reasonable reflection of the respondents' perceived value of the G.I. Bill, one should be able to obtain a fairly good estimate of what the G.I. Bill is worth to the enlistee, especially, since only those respondents who had previously indicated an intention of probably or definitely enlisting were used.[1]

These respondents were classified according to their intended branch of service, and then further subdivided according to their high school grades. It was assumed that those who indicated the fair cash payment to be over $10,000 valued the G.I. Bill at $11,300, which would be the maximum benefit (for a user with two dependents) possible. No attempt to assign a dollar value to the "no cash payment should be offered" response was made due to its ambiguity. While such a response could indicate a present value of zero, it could also indicate a desire to keep the G.I. Bill. For example, all of the Army A & B high school graduates who had listed the G.I. Bill as a "strong influence" in their enlistment decision gave the "no cash payment" response. Therefore, it was necessary to utilize the "some influence" response for this particular group. The only other exception in this instance, where "some influence" responses had to be employed, were the Marine Corps A and B students, in which there were *no* individuals who considered the G.I. Bill as a strong influence for enlisting.

To calculate the present value of the post-service educational benefit package, a weighted average (i.e., the number of respondents selecting each value being the weights) was taken. The results are shown under the "Perceived Value of G.I. Bill" column in Table 3.6. Once a present value had been established, a wage elasticity coefficient was applied to express the relationship between the percentage change in quantity of enlistees supplied and the percentage change in wages.

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[1] In most cases this group was further restricted to include only those who had expressed the G.I. Bill as a "strong influence" (Question 195) in their decision to enter military service. (For the exceptions, only "some influence" responses were used because there were no "strong influence" responses.)

Table 3.6

Econometric Estimates of the Impact of G.I. Bill Termination on Accessions

Accession Group	Cell Size of NLS Sample[1]	Planned Usage Rate (% of Accession Group)[2]	Perceived Value of G.I. Bill[3]	Shortfall Estimates	# Drop from G.I. Bill Termination in NLS Sample
Army					
A's & B's	11,701	12.1%	$10,000	6.4%	749
B's & C's	23,919	26.7	6,695	11.0	2,631
≤D	5,893	11.2	11,300	6.3	372
Total	41,518	--	--	9.0	3,752
Navy					
A's & B's	14,093	20.5	11,300	11.6	1,635
B's & C's	18,502	24.6	7,997	11.3	2,091
≤D	3,576	23.1	8,564	11.1	397
Total	36,171	--	--	11.4	4,123
Marine Corps					
A's & B's	2,841	47.7	10,984	26.5	753
B's & C's	6,729	12.7	10,070	6.7	451
≤D	3,168	21.1	11,300	11.9	377
Total	12,738	--	--	12.4	1,581
Air Force					
A's & B's	15,068	15.2	8,290	7.2	1,085
B's & C's	19,860	29.2	6,768	12.1	2,403
≤D	3,474	16.1	11,300	9.1	316
Total	38,402	--	--	9.9	3,804
DoD					
A's & B's	43,703	--	--	9.7	4,222
B's & C's	69,010	--	--	11.0	7,576
≤D	16,116	--	--	9.1	1,462
Total	128,829	--	--	10.3 *	13,260
Ceiling Estimate[4]	98,484	27.7	11,300**	20.7*	20,386

ECONOMETRIC ESTIMATE OF TERMINATION IMPACT: 10% - 21%

*Thus establishing the impact range of 10%-21% for DoD.

* Measuring the G.I. Bill influence in dollars is consistent with the finding in the May 1975 AFEES survey that G.I. Bill and pay have a correlation of 0.51. No other incentive correlates as highly with pay as G.I. Bill, and vice versa.

[1] The NLS sample is weighted in order to reflect the total high school population of 1972.

[2] Developed from the National Longitudinal Study of the High School Class of 1972; only the responses of those who actually entered the service by 18 months later were used.

[3] Developed from the Gilbert Youth Attitude Study of October, 1973; only those respondants considering the G.I. Bill as a "strong influence" (except for Army and Marine Corps A's & B's where "some influence" was used instead) in their enlistment decision, as well as indicating a high probability or certainty of enlisting, were used.

[4] Using a planned usage rate which was based only on the population who said "I do" or "I do not", and thus omitted the "I don't know". In addition, the longest GRC 1974 elasticity value, 1.65, was used instead of 1.25.

$x = EV/(P+V)$
where E = the wage elasticity coefficient
V = the present value of the G.I. Bill
P = the present value of first-term pay.

The present value of the enlistee's pay, as calculated in the OMB model (discounted at 20%) equals $13,687. By employing the elasticity coefficient developed by the Gates regression study (valued at 1.25) the percentage drop of Army enlistees planning to use the G.I. Bill, who also have grades averaging in the A's and B's, can be calculated as follows:

$$x = (1.25)(10{,}000)/(13{,}687 + 10{,}000) = 52.8\%$$

This result represents a drop only in those accessions planning to use the G.I. Bill. To discover the impact on total accessions, the equation needs to be transformed in the following manner:

$\Delta Q_i = U_i EV/(P+V)$
where: U_i = the % of accessions from population group i who plan to use the Bill
ΔQ_i = the % change in the group i

Usage rates (U_i) can best be calculated from the National Longitudinal Study of the High School Class of 1972 (NLS). This survey (Question 22P) asks the following question: "Do you plan to use funds available from any of the following programs for further study beyond high school?"

There are several reasons for choosing the NLS Survey to derive usage rates. First, it focuses on those who actually did enlist. Secondly, the feeling about the G.I. Bill among this group is in close correspondence with that of present day accessions (as seen by comparing the NLS Survey with the 1975 AFEES Survey). According to the NLS Survey almost 44% of those who actually enlisted considered the G.I. Bill to be "very important" in helping them decide to join the Service (Q46). The May 1975 AFEES result was 44.9% (Q17B). To the extent that the responses are biased, they should be biased in a similar fashion since the structure of both questions is similar. Second, the responses should both be expected to be heavily grounded on the respondents' usage. Therefore, similar results on the importance of the G.I. Bill should indicate similar.

rates of usage.

With usage rates obtained, the impact of termination can be estimated for the mental groups of the four Services. The impact on each of the Services as a whole and DoD as a whole can be found by expressing the predicted numerical drop of the NLS sample as a percentage of the appropriate population cell size. For example, by multiplying the Army A's and B's cell sample (11,701) by 6.4% (ΔQ), it is discovered that 749 individuals in the sample would not have enlisted if the G.I. Bill were terminated. By repeating the same process for the other two mental groups and then summing the results, one derives a loss of 3,752 Army enlistees which constitutes 9.0% of the sample. This figure and the other predicted impacts can be found in Table 3.6 under "Shortfall Estimates".

As with any estimate, the sensitivity of the forecast variable (in this case accessions) is an important issue. It can be readily seen that a percentage change of 1% in either the expected rate of usage or the coefficient of wage elasticity -- *ceteris paribus* -- leads to a change of 1% in accessions. The estimate of perceived value of the Bill is not as crucial, however. To see this, raise the present value estimate of the Army A's and B's ($10,000) by 1% (to $10,100). Calculating the resulting change in accessions (with U_i = 12.1%):

$$\Delta Q = 6.42\%$$

Thus, a percentage rise of 1% in perceived value leads to only a 0.3% rise in impact.

It is interesting to note that, with the exception of the Marine Corps, the B's and C's had the highest planned usage rates, and yet, the present values of the B's and C's were the lowest for all three Services. It is also interesting that in five of the twelve cases, the responses for a single cash value to replace the G.I. Bill were unanimous.[1] The B's and C's showed the most variation in their present value responses, as these populations had three out of the four largest standard deviations (the Army B's and C's has the largest).

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[1] The groups were: Army A's and B's, Army below D's, Navy A's and B's, Marine Corps below D's, and Air Force below D's.

The econometric study assumes the same elasticity coefficient (1.25) for all branches of Service. With regard to the Navy and especially the Marine Corps, such an assumption could very well result in *overestimates* of the termination impact. A recent General Research Corporation study (Lawrence Goldberg, 1975, p. 10) produced estimates of *zero* wage elasticity for the Navy and the Marine Corps while noting that the zero estimate should not be taken literally. Similarly, in the Gilbert Youth sample, there were no individuals intending to join the Marine Corps, with grades averaging in the A's and B's, who felt the G.I. Bill to be a "strong influence" in their enlistment decisions. On balance, the 1.25 elasticity coefficient may be considered accurate for the total DoD impact assessment.

Summary of Impact Measures

As of President Ford's request for termination in May 1975, the estimates of impact were too far-ranging to be useful. Estimates ranged from as low as a 3% loss of quality enlistees to in excess of 60%. (The 3% estimate is based on new recruits who attribute the G.I. Bill as the *sole* reason for enlisting, and estimates at or above 60% are based upon stated endorsement of the G.I. Bill.) Earlier sections of this report have explained why neither of these extremes is valid, and the present section has presented four impact models which were designed to depolarize the extreme views. These four estimates place the DoD-wide impact between 10% and 23%.

Confidence can now be placed in a nummary upper limit for the impact of G.I. Bill termination upon Defense accessions overall. Based upon conservative econometric assumptions, and reinforced by the other methods in this section, the upper limit estimate should be taken as 21%. The deviation of this result is provided in the last row of Table 3.6 on page 53.

In order to further evaluate the impact upon important subgroups, the output of the Educational Benefit Model has been used. Specifically, the subgroups by branch of Service, by age, by race, and by grades (for Caucasians) were evaluated. The essential tools for evaluating these *relevant* impact factors are depicted in Figure 3.1, page 44. The subgroups which were evaluated are by branch of service, by age, by race, and by academic grades (for Caucasians only). Naturally, less confidence would be placed in the impact assessed for each cell than in the overall average. All of these estimated percentage drops appear in Table 3.7 for the upper limit case (21% overall), and in Table 3.8 for the best estimate (15% overall).

Summary of Impact Measures

As of President Ford's request for termination in May 1975, the estimates of impact were too far-ranging to be useful. Estimates ranged from as low as a 3% loss of quality enlistees to in excess of 60%. (The 3% estimate is based on new recruits who attribute the G.I. Bill as the *sole* reason for enlisting, and estimates at or above 60% are based upon stated endorsement of the G.I. Bill.) Earlier sections of this report have explained why neither of these extremes is valid, and the present section has presented four impact models which were designed to depolarize the extreme views. These four estimates place the DoD-wide impact between 10% and 23%.

It is recommended for planning purposes that the "worst case" estimate be considered at 21%, which is based upon conservative econometric assumptions. This estimate, shown in Table 3.8, *does not take advantage of any offsetting management actions*. The motivation modeling in Chapter 2 strongly suggests that a well-marketed in-service program could signicantly mitigate the impact. Conversely, changes in recruiting force size or similar management policy actions could increase the impact.

Table 3.7 Estimated % Drops if G.I. Bill
Were Terminated: Upper Limit

Male HS Graduate Subgroup			Army	Navy	MC	AF	DoD
Age	Race	HS Grades					
17-18	Caucasian	A&B	26%	21%	22%	22%	22%
		B&C	15	15	17	15	15%
		≤ D	29	29	29	28	29%
	Other	–	23	25	12	22	22%
19-25	Caucasian	A&B	31	50	6	52	42%
		B&C	3	4	5	3	4%
		≤ D	10	10	10	10	10%
	Other	–	37	29	10	53	30%
Total			22%	19%	12%	26%	21%

TRANSITION WILL DETER 19-25 YEAR OLDS WHO HAD HIGH GRADES AND 17-18 YEAR OLDS WHO HAD HIGH AND LOW GRADES.

Table 3.8 Estimated % Drops if G.I. Bill
Were Terminated: Best Estimate

Male HS Graduate Subgroup			Army	Navy	MC	AF	DoD
Age	Race	HS Grades					
17-18	Caucasian	A&B	19%	15%	16%	16%	16%
		B&C	11	11	12	11	11%
		≤D	21	21	21	20	21%
	Other	-	16	18	9	16	16%
19-25	Caucasian	A&B	22	36	4	37	30%
		B&C	2	3	4	2	3%
		≤D	7	7	7	7	7%
	Other	-	26	21	7	38	21%
Total			16%	14%	9%	19%	15%

TRANSITION WILL DETER 19-25 YEAR OLDS WHO HAD HIGH GRADES AND 17-13 YEAR OLDS WHO HAD HIGH AND LOW GRADES.

VALIDATION OF QUEUE SIZE

The new EBM method for estimating queues of potential enlistees can be partially validated by several methods. The major method of validation has been to check its "Proclivity-Derived-Queue" against previous years' actual experience. A second method has been to compare the transition probabilities used in the EBM, derived from the National Longitudinal Study, to similar transition probabilities which were derived for this study from the 1973 Gilbert Survey (where social security numbers were taken). Results from these two validation procedures are reported below. A third type of exploratory validation has been used, consisting of the continuous comparison of pieces of EBM output with results from other information -- to check for plausibility and consistency. (For example, the *relative* impact among Services was validated against AFEES data.)

In Table 3.9, a comparison of EBM output versus actual enlistments is made for the past three years. Each entry gives the ratio of actual high school graduate accessions to the EBM queue forecast, which was based upon the preceding Spring's census data[1] and proclivity distribution. Ratios which depart from unity are due to (1) the Services missing their enlistment objectives, (2) inappropriate EBM assumptions, and/or (3) inaccuracies in the EBM data base.

A further perspective on these "fits" of EBM queues with later enlistments emerges from the Exploratory Data Analysis treatment in Table 3.10. In this table, the overall average (or "comparison value") of 0.823, as well as the row and column effects, have been subtracted from each entry of Table 3.9. This subtraction leaves only the "residual" coupling interaction effect remaining as the entry in each cell. To interpret this breakdown, note that: Original cell entry = Comparison Value + Row Effect + Column Effect + Interaction Residual.[2] On the basis of Table 3.10, one can

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[1] Population estimates used in the Gilbert survey did not agree with the Census data. The latter were used here.

[2] Thus, for example, the 1973 Army ratio: 1.538 = 0.823 +0.550 + 0.050 + 0.115.

Table 3.9

Ratio of Actual Enlistments to "A Priori" EBM Estimate

	Accession Years		
	1973	1974	1975
Army	1.538	1.190	1.390
Navy	0.607	0.566	0.721
Marine Corps	0.490	0.507	0.694
Air Force	0.854	.637	0.677

Table 3.10

Service and Year Effects on the Ratio of Actual Enlistments to EBM Estimates

	Residual Interaction Effects			Service Effects
	1973	1974	1975	
Army	.115	- .085	- .031	0.550
Navy	- .074	.033	.042	-0.192
Marine Corps	- .124	.041	.082	-0.259
Air Force	.081	.012	- .094	-0.100
Year Effects	0.050	-0.098	- .048	0.823 Overall Average Ratio

THE EBM QUEUE ESTIMATES ARE PLAUSIBLE ACCORDING TO EMPIRICAL DATA

TABLE 3.11 TRANSITION PROBABILITIES: NLS vs GILBERT

Stated Proclivity to Join the Military	Proportion Actually Entered After One Year	
	NLS HS Seniors	Gilbert 19-25 Year Olds*
Definitely Yes	33%	26%
Probably Yes	10%	10%
Don't Know	9%	N.A.
Probably No	5%	2%
Definitely No	2%**	1%

- THE GILBERT YOUTH TRANSITION PROBABILITIES ARE LESS ACCURATE BUT GENERALLY CONSISTENT WITH THOSE FROM THE NLS
- CONVERSION OF "INTENT" TO "JOIN UP" IS LOWER AMONG OLDER ELIGIBLES

SOURCES: National Longitudinal Study check on actual behavior versus announced intentions; and 1973 Gilbert Youth Survey tracking of social security numbers against later military accessions.

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* In the Gilbert case, social security numbers cannot be tracked for those not found in the military; stated social security numbers are also often incorrect. The Gilbert conversions should therefore be considered under-estimates. Furthermore, the Gilbert sampling error is substantially larger than the NLS.

** For the EBM treatment of 19-25 year olds, a factor of 1/2 was used.

ferret out individual phenomena. The Service (row) effects are compatible with general knowledge about recruiting. The Army's needs exceed its natural queue and are somewhat met by extra recruiting effort and by excesses from other Services; the Marine Corps concentrates upon younger men and, therefore, may not be utilizing its full queue of graduates from past years; and the Air Force queue exceeds its needs. Turning to the year (i.e., column) effects, the main point to notice is that they are very small -- indicating that the PDQ method is not biased over these years. Finally, note that the residual interaction effects are also very small -- suggesting that this statistical model fits the data quite well.

In summary, the EBM is adjudged to be valid because: the ratio of actual enlistments to the EBM "PDQ" averages slightly under 1, shows appropriate Service effects, and shows very little yearly effect.

EBM OUTPUT

The major purpose of the EBM was to predict the queue of high school graduate potential enlistees for FY1976, with and without G.I. Bill termination.

The following Tables were generated by successive runs of the EBM. In each table, the population of potential high school graduate enlistee is broken into subgroups by Age, Race, and high school grades (for each Service branch):

> Table 3.12 shows the queue of high school graduates in thousands for July 1975 through June 1976 -- assuming continuance of post-service educational benefits.
>
> Table 3.13 shows the projected impact of terminating these benefits in the various population subgroups and Service branches.
>
> Table 3.14 presents an estimate of the non-high school graduate queue.

In Figure 3.3, estimated accession queues for male high school graduates (with and without G.I. Bill educational benefits) are compared with the Service-stated accession requirements for FY76.

Table 3.12

H.S. Graduate Queue for July 75-June 76: with Continued G.I. Bill (In Thousands)

Subgroup			Army	Navy	MC	AF	DoD
Age	Race	Grades					
17-18	Cau.	A&B	2.7	5.2	5.8	6.9	20.6
		B&C	7.1	10.9	2.9	10.2	31.1
		≤D	6.5	3.8	2.8	3.9	17.0
	Caucasian		*16.3*	*19.9*	*11.5*	*21.0*	68.7
	Other		*5.7*	*6.5*	*1.6*	*6.0*	19.8
	Subtotal		22.0	26.4	13.1	27.0	88.5
19-25	Cau.	A&B	20.4	21.1	3.5	20.2	65.2
		B&C	17.2	43.0	5.9	31.9	98.0
		≤D	19.6	9.1	6.1	7.1	41.9
	Caucasian		*57.2*	*73.2*	*15.5*	*59.2*	205.1
	Other		*20.9*	*10.5*	*24.0*	*16.8*	72.2
	Subtotal		78.1	83.7	39.5	76.0	277.3
Total (HS)			100.1	110.1	52.6	103.0	365.8

Table 3.13

H.S. Graduate Queue for July 75-June 76: with Terminated G.I. Bill (In Thousands)

Subgroup			Army	Navy	MC	AF	DoD
Age	Race	Grades					
17-18	Cau.	A&B	2.2	4.4	4.9	5.8	17.3
		B&C	6.3	9.8	2.5	9.1	27.7
		≤D	5.1	3.0	2.2	3.1	13.4
	Caucasian		*13.6*	*17.2*	*9.6*	*18.0*	*58.4*
	Other		*4.8*	*5.3*	*1.5*	*5.1*	*16.7*
	Subtotal		18.4	22.5	11.1	23.1	75.1
19-25	Cau.	A&B	15.8	13.6	3.4	12.7	45.5
		B&C	16.8	41.9	5.7	31.1	95.4
		≤D	18.2	8.5	5.7	6.6	38.9
	Caucasian		*50.8*	*63.9*	*14.7*	*50.4*	*179.8*
	Other		*15.4*	*8.4*	*22.3*	*10.4*	*56.5*
	Subtotal		66.2	72.3	37.0	60.9	236.3
Total (HS)			84.6	94.8	48.1	84.0	311.5

Table 3.14

Non H.S. Graduate Queue for July 75-June 76

	With G.I. Bill	Without G.I. Bill[1]
Army[1]	110.7	94.1
Other Services	119.9	101.9
DoD	230.6	196.0

[1] Based upon the Army's share of 1975 non-HS accessions.

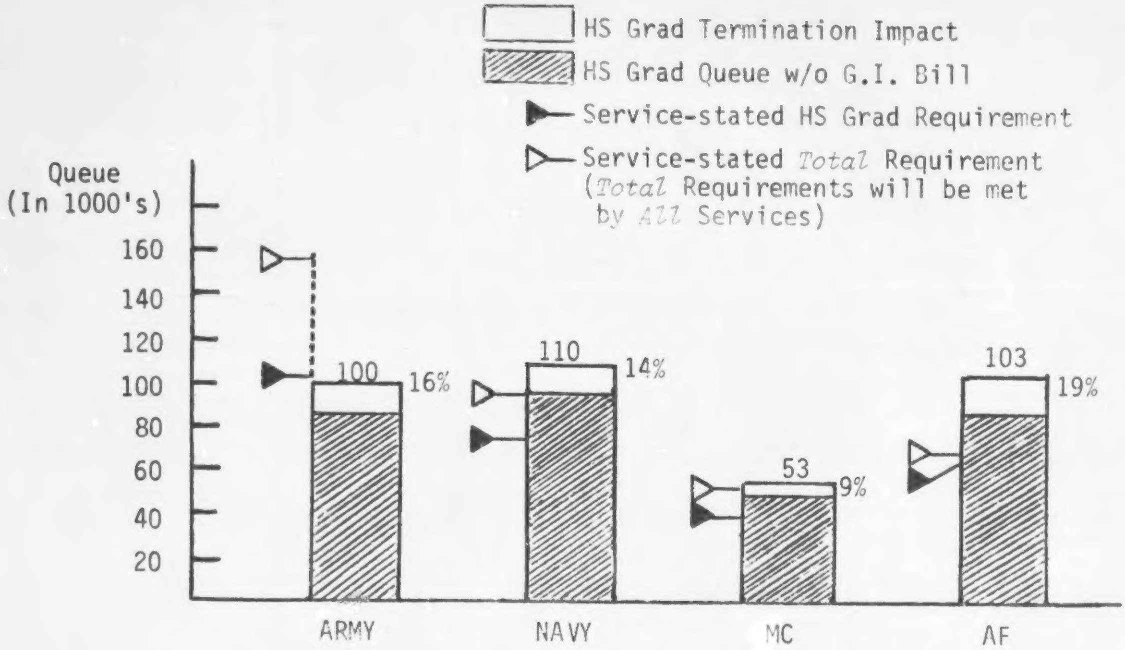

Figure 3.3

Estimated Accession Queue for Male HS Graduates vs. Stated Requirements for July 1975-June 1976

THE ARMY WILL BE BORDERLINE FOR HS GRADS EVEN WITH THE G.I. BILL, WHEREAS OTHER SERVICES HAVE ADEQUATE QUEUES EVEN WITHOUT THE G.I. BILL.

Chapter 4

COSTS AND BENEFITS

TRENDS OF MILITARY COMPENSATION

As Figure 4.1 indicates, while the G.I. Bill has been increasing in terms of dollars, it has been declining as a proportion of an enlistee's compensation. This decline has become particularly pronounced with the beginning of the All-Volunteer Force.

The G.I. Bill portion for the first two time periods shown in Figure 4.1 represent the average amount of Bill-related educational benefits received by veterans during the duration of each of the first two G.I. Bills.[1] The third bar represents the average amount received from the beginning of the third and current G.I. Bill through April 1975. The fourth bar utilizes the estimate of current average benefits ($4,100), As developed by DoD. The in-service compensation includes both pay and the housing allowance averaged for enlisted grades E1 through E3. It is assumed that the enlistee has one dependent. The median male income (ages 20-24) are summations of this income for the same three-year period of each corresponding in-service bar.

As the dollar amounts for compensation continually rise with the passage of time, it is desirable to use in-service compensation close to the middle of the G.I. Bill's duration. In the case of the World War II G.I. Bill (the first bar), however, this was not feasible, and the in-service compensation is located close to the termination date. Consequently, the Bill's proportion can be expected to be slightly greater than that portrayed. This means that the decline should also be greater.

With the proposed termination, questions arise concerning the desirability of a decline. Part of the G.I. Bill's justification lies in compensating veterans for economic exploitation suffered under the draft. With the end of the draft, this justification is no longer valid.

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[1] Often referred to as the World War II G.I. Bill and Korean G.I. Bill.

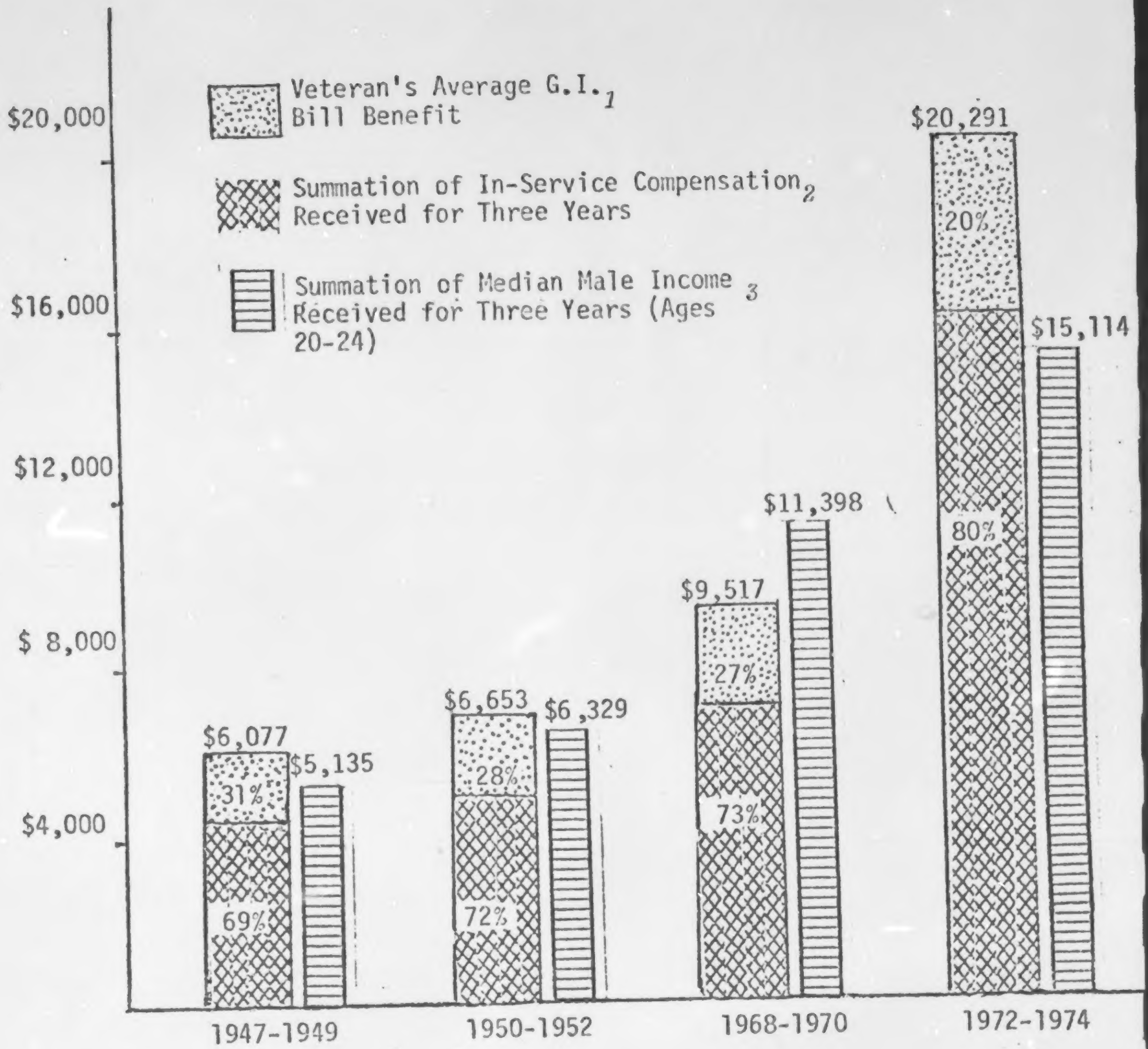

Figure 4.1

The G.I. Bill as a Proportion of Military Compensation

THE G.I. BILL HAS BEEN DECLINING AS A PROPORTION OF AN ENLISTEE'S COMPENSATION

1/ Developed from V.A. information Bulletin (DVB IB 20-75-5) except for the 1972-74 figures which were provided by DoD.

2/ Provided by H.A.S.C. No 94-5, Pay and Allowances of the Uniformed Services, pp. 99-102. Includes Pay and Housing Allowance.

3/ Provided by the Bureau of the Census.

However, a reading of the current Bill's purpose will show that readjustment and compensation are not the only reasons for the G.I. Bill. *In fact, the first two reasons stated are to provide an incentive to enlist and to extend the benefits of education to deserving young persons.*

> *Sec 1651. Veterans' Educational Assistance -- Purpose*
>
> The Congress of the United States hereby declares that the education program created by this chapter is for the purpose of (1) enhancing and making more attractive service in the Armed Forces of the United States, (2) extending the benefits of a higher education to qualified and deserving young persons who might not otherwise be able to afford such an education, (3) providing vocational readjustment and restoring lost educational opportunities to those service men and women whose careers have been interrupted or impeded by reason of active duty after January 31, 1955, and (4) aiding such persons in attaining the vocational and educational status which they might normally have aspired to and obtained had they not served their country. (Title 38 -- United States Code, Veterans' Benefits, Chapter 34 .)

Therefore, while a complete answer to the question of the desirability of G.I. Bill termination lies outside the scope of enlistment motivation -- and, consequently, outside the scope of this study -- a start can be made through an examination of costs and benefits. While this effort should not be regarded as definitive, it does provide a foundation for further research.

COSTS OF G.I. BILL ALTERNATIVE PROGRAMS

The costs of the post-service G.I. Bill and proposed alternatives are presented in Table 4.1.[1] This section briefly describes the nature of program options and the manner in which cost estimates were calculated.

The Cost of G.I. Bill Post-Service Educational Benefits.

The number of users was found by multiplying the total number of enlistees for FY1975 (456,000) by the historical usage rate of 57%. This figure was then multiplied by the average historical cost of $4100 in order to derive the program cost. The average cost-per-user could be looked upon as a function of the monthly stipend used (averaging around $200, a veteran with no dependents could use as much as $270 per month) and the number of months the stipend is received (averaging 20 months). Therefore, the G.I. Bill is subject to three variables (rate of usage, monthly stipend, and months of use), with a change in any one of these variables generating a change in total cost. In addition to this, the "months of use" variable is to some extent influenced by the rates of retention, which are also subject to fluctuation. Consequently, budget control will not be particularly easy.

It should be pointed out that the "Cost of Program" column in Table 4.2 relates to the cost of procuring enlistees for a *single* year. Therefore, while the chief (but not the only) benefit is incurred during the first three-year term of enlistment (except where an incentive to reenlist is provided by the program), the costs are stretched over a period of years -- which could well last over a decade. Consequently, the one billion dollar cost of the G.I. Bill should not be confused with the four billion dollar budgetary figure (which is part of a *process* of paying off *several* yearly accession groups).

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[1] Costs of in-service G.I. Bill are about $100M yearly. It has been assumed in this study as well as throughout the Defense Department that the in-service G.I. Bill budget will be transferred from VA to DoD.

[2] As of April 1975, the Vietnam era participation rate was 58.5%, with a greater participation rate in college-level training than any prior group of veterans. Ascending usage trends have resulted in a projected budget of over $6B for FY76.

TABLE 4.1

Estimated Costs of G.I. Bill Post Service Education and Alternative Programs

Program[1]	Numbers of New Users (per annum)	Average Cost/User[4] (1975 Data)	Cost of Program (per annum)
G.I. Bill	259,920	$4,100	$1,066M
Reservist G.I. Bill	114,000	4,100	467M
Reservist and High School Graduate G.I. Bill	81,478	4,100	334M
Reservist and Critical Skills G.I. Bill	5,000	4,100	21M
Clements Alternative	228,000	2,650	604M
Clements Modified	37,735	2,650	100M
Critical Skill Scholarship	15,000	4,000	60M
Scholarship Insurance	15,000	4,000	53.8M[2]
Critical Skills Bonus	20,000	1,200-1,640[3]	24M-33M[3]
High School Graduate Bonus	325,910	1,200-1,640[3]	391M-550M[3]
Scholarship Bonus	46,666	3,000	140M
Clements Scholarship Bonus	22,651	4,415	100M

FEASIBLE POST-SERVICE G.I. BILL
ALTERNATIVES RANGE IN COST FROM
$21M TO $1,066M YEARLY

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[1] See Text for program details and assumptions

[2] Cost incurred by DoD; the cost incurred by the insurance firm would be $60M (excluding risk and administrative costs), the same as the Critical Skills Scholarship.

[3] The lower extreme assumes a shortfall (from G.I. Bill termination) of 10.3% (total DoD(, while the higher extreme assumes a shortfall of 21.0%.

[4] The FY76 figure of $6B was considered inflated by unemployment, so that the FY75 figure was used as a best estimate.

The Reservist G.I. Bill

In the attempt to reduce the cost of the G.I. Bill without significantly affecting its attractiveness, it has been proposed that an enlistee be required to join the reserves [1] upon discharge in order to gain eligibility to use the Bill. Cost savings would then be generated by a reduced rate of usage. By referring back to the econometric study on page 48, it was discovered that while the historical usage has been 57%, the planned usage was only about 25%. This suggests that more than one-half of the Bill's users were not attracted to the Services by the Bill. Assuming that the proposal lowers the actual usage rate to the planned usage rate of 25%, the number of users would be reduced to 114,000, and the cost would then be reduced to $467M. By further restricting the Bill to high school graduates, the cost would be further reduced to $334M (portrayed as "Reservist and High School Graduate G.I. Bill"). Finally, the program could be further restricted to include only 20,000 enlistees with critical skills. This would reduce the cost to $21M (portrayed as "Reservist and Critical Skills G.I. Bill").

The Clements Alternative

The Clements Alternative seeks to reduce both the rate of usage and the average cost-per-user. The usage rate reduction is accomplished by two program features. First, eligibility after one's discharge from active duty is reduced to a period of five years (as opposed to ten years under the current G.I. Bill). The second feature is that use of the benefits are to be restricted to accredited schools with classroom participation. This is expected to lower the usage rate to 50%, leaving 228,000 users.

The average cost-per-user is also reduced by two features. The first is the reduction of the monthly stipend to $200 maximum, regardless of how many dependents the veteran has to support. Under the current G.I. Bill, an enlistee with no dependents is entitled to $270 per month and increased allowances are given for each dependent. Since the current monthly stipend averages to $200, it is assumed that the Clements reduction in the maximum will cause the average to drop to $150. The other new feature is the reduction of the entitlement to period-of-service ratio. Under the current Bill, a serviceman gains 1.5 months of entitlement for each month of service, up to a total of 36-months for three years of service. The Clements Alternative reduces this ratio to one month entitlement for two months of service. Thus, after three years of service, a person under the Clements Alternative would have only six years before earning the maximum entitlement of 36 months. This should be expected to reduce the months of actual usage. For the purposes of this study, acceptance of the following DoD assumptions are made: those with three years of service will utilize benefits for 12 months; those with four years will use 18 months; those with five years will use 24 months; those with six years will use 30 months; and those above six years will use the maximum of 36 months.

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[1] A significant manpower depletion in the Army Individual Ready Reserve (IRR) is anticipated within the next few years -- and directly bears on the issue of alternative means for the maintenance of reserve force levels.

By applying the retention rates used in the OMB-led Task Force Study (so as to determine the percentages of the accession group who will have specific periods of completed service), the Clements Alternative is costed at $604M. The average cost-per-user is calculated to be $2,650, while the benefits on the average will be used for approximately 18 months.

The Clements Modified, The Critical Skills Scholarship, and Scholarship Insurance.

The Clements Modified differs from Clements Alternative only in its cost restriction of $100M. Therefore, with the cost exogenously determined, it becomes necessary only to discover how many could use the program while keeping the cost under the $100M ceiling. This is simply derived by dividing $100M by the average cost-per-user, with a result of 37,735.

However, by restricting post-service education benefits to enlistees with critical skills, it is possible to keep costs below $100M -- even without having to resort to a measure such as the Reservist G.I. Bill. The Critical Skills Scholarship provides an example as to how this can be done. To be eligible for this program, the veteran must have at least three years of service and be a high school graduate. Payments will be made to any accredited college attended by the veteran, spouse, or child.

In addition to this, $1,000 subsistence will be granted per full-time semester, although total aid (both tuition and subsistence) is not to exceed $8,000.

It is assumed that the average cost-per-user will be $4,000, and 15,000 people will participate in the program (a usage rate of 75%). This establishes the cost of the program at $60M.

This $60M figure could be reduced through the contracting of an insurance firm. This concept is illustrated by the Scholarship Insurance Proposal.[1/] Under the Insurance program, eligible veterans will receive exactly the same benefits as under the Critical Skills Scholarship. The difference is that the benefit, rather than being paid by the VA, will be paid by a contracted insurance firm. For each of the 20,000 enlistees, DoD will pay to the insurance firm $74.66 for 36 months. Therefore, the program cost to DoD will be $53.8M -- a cost saving of $6.2M.

The reader might perhaps be wondering how would it be possible to persuade a profit motivated insurance firm to accept $53.8M in return for having to pay out $60M by some later date? The answer lies in the benefit of being able to *use* money. It is expected that on the average, payments will not begin until five years after the day of enlistment. Therefore, by simply letting the money sit in a bank at 7% interest per annum, the firm would have its investment of $53.8M grow into $70.5M, (which would allow $10.5M to cover the administrative costs as well as the cost of risk).

Scholarship Insurance is an example of the substitution of private enterprise for governmental administration.

The Critical Skills Bonus and the High School Graduate Bonus

Another possible way to mitigate the impact of G.I. Bill termination would be to give a straight cash bonus for enlistment. The necessary size of the cash bonus can be estimated through the use of the Gates supply

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[1/] Details of this concept are formulated in the Scholarship Insurance "options paper" presented in Appendix A.

elasticity coefficient in a way very similar to the derivation of the econometric estimates.

$$\Delta q = 1.25 \, \Delta P/13{,}687$$

where: 1.25 = the Gates elasticity coefficient
$13{,}687$ = the present value of enlistee's pay
Δq = the % drop of enlistees due to the Bill's termination
ΔP = the size of the bonus

As can be seen, the higher the termination impact, the higher will be the bonus needed to offset this impact. Therefore, if the econometric estimate is assumed to be 10.3%, the bonus will equal $1,200. However, if the impact estimated by the EBM is adopted (i.e., 15%), the size of the bonus rises. Solving for the ΔP, the needed bonus is seen to be $1,640).

If only the impact on critical skills is to be mitigated, this bonus can be restricted to 20,000 enlistees. This established the cost as ranging from $24M - $33M. However, if the force quality is to be maintained at about present levels, then it would be advisable to grant the bonus to all enlistees with a high school diploma. This would raise the cost range to $391M - $550M. The variance in these cost estimates is accounted for by the difference in the bonus estimates. For example, the $24M figure listed under the "Critical Skills Bonus" is based upon the $1,200 bonus, while the $46M is based on the $2,300 bonus.

The Scholarship Bonus

The Scholarship Bonus is a proposal which is designed to give a $3,000 bonus to a restricted number of enlistees upon completion of three years service. The restrictions were to be the same as the original Callaway Alternative -- which, when applied to DoD, was costed at $70M. With this figure, it becomes possible to determine the number of eligibles under the Callaway proposal.

$70M = x $2,500 (60%)
where $2,500 = the scholarship under the Callaway Alternative
60% = the assumed rate of usage by the Callaway Alternative
x = the number of eligibles

Solving for x, the program is found to be restricted to 46,666 enlistees.

One major difference between the Callaway Alternative and the Scholarship Bonus is the freedom, under the Scholarship Bonus, given to recipients for spending the money as they please -- while under the Callaway Alternative, the money can be spent only on college education. Without user restrictions, therefore, the usage rate under the Scholarship Bonus is expected to be 100%. Consequently, the number of users under the Scholarship Bonus will equal the number of eligibles (46,666). Multiplying 46,666 by the $3,000 bonus will give the program a cost of $140M.

The Clements Scholarship Bonus

The Clements Scholarship Bonus is designed to provide incentives for both enlistment and reenlistment. Upon the completion of three years of service, an individual in this program will receive a cash bonus of $3,600. If this individual chooses to reenlist, he will be granted an extra $200 monthly entitlement until the completion of six years of service. Thus, a person could earn a bonus as large as $7,200.

As in the Clements Modified, the costs of the program were set by fiat at $100M. Since the amounts tendered are based upon length-of-service, it is necessary to use the retention rates applied in the OMB-led Task Force model. This approach yields the information that the program must restrict itself to 22,651 users. The average cost-per-user will equal $4,415.

COMPARATIVE BENEFITS

The costing study reveals the "Reservist and Critical Skills G.I. Bill" as the cheapest and the G.I. Bill as most expensive of the proposed alternatives. Yet, cost figures are not sufficient to determine which of the programs is in an overall sense the best. While the cost of the Reservist and Critical Skills G.I. Bill is estimated at only $21M (less than 2% of the current G.I. Bill cost), it would, at best, only mitigate the impact of the Bill's proposed termination in critical areas. Consequently, noncritical areas will suffer a reduction in quality, and the Armed Forces will to some extent not be as strong as at present. Therefore, it may be desirable to extend the Reservist G.I. Bill to all high school graduate enlistees. It should be pointed out, however, the cost of doing this is not insignificant. It would entail an incremental addition of $313M -- an increase of over 1,400% from the $21M figure.

Despite this increase, the Reservist G.I. Bill compares favorably with the current G.I. Bill, the Clements Alternative, and the High School Graduate Bonus. Thus, one might be led to conclude -- from a DoD standpoint -- that the Reservist G.I. Bill is the most efficient concept among the alternatives. However, this conclusion must be conditioned by the understanding that the Reservist G.I. Bill estimates are the most uncertain. This uncertainty applies to both costs and benefits. It is quite possible that the usage rate would be allowed to go beyond 25% and drive up the costs. On the benefits side of the problem, it is uncertain as to how attractive the program will be to potential enlistees. Therefore, to the extent that one is predisposed to exercise caution, the more attractive proposals such as the Critical Skills Bonus or the High School Graduate Bonus will become (provided one is only interested in capturing benefits directly related to national defense).

The difficulty, however, with adopting such a purely Defense-oriented posture, is that such a position may not be the most economic. This stems from the *public good* aspects of education. An individual who consumes education not only benefits himself, but also benefits society in becoming a more productive member. "Productive" can be understood both in the sense of providing goods and services as well as a more general benefit. Therefore, as James M. Buchanan points out in Public Finances, education can in part be conceived as a form of investment (Buchanan, p. 350). This conception leads to another argument for state support of education. In contrast to other forms of investment, the prospective student cannot as easily resort to the capital market. While part of the difficulty lies in the imperfections of the capital market, this is not the whole problem, as Dr. Buchanan states:

> The real difficulty is only in part the result of imperfections in the capital market as such; the trouble lies in the fact that the individual person cannot legitimately consider himself, his own person, as a capital asset for purposes of providing collateral for loans. The prospective lender of funds cannot secure a wholly valid legal claim against the person of the student in exchange for lending the required investment funds. (Buchanan, p. 351)

So, even apart from the social welfare aspect of education, there is an economic justification for state support -- although the capital market problem would suggest loans to students rather than general public subsidization.

Critics of the G.I. Bill have suggested that HEW and other sectors of government could more efficiently provide support for education on a dollar-for-dollar basis. In the absence of more information, this contention appears to be correct. However, the criticism overlooks an important fact -- that is, the costs of the G.I. Bill are "joint costs". (This refers to the ability of a cost to simultaneously accomplish two or more benefits.) The current G.I. Bill not only attracts enlistees, but also educates them. A cash bonus, on the other hand, provides only an incentive for enlistment, Likewise, a HEW program will do nothing to increase enlistments. Therefore, the current G.I. Bill could be a more efficient option than an enlistment bonus combined with budgetary increases to HEW. As a hypothetical example, if $391M were appropriated for enlistment bonuses, and if $700M were deemed necessary to offset the impact of the Bill's termination on education, it would be preferable to keep the G.I. Bill rather than incur the extra cost of $25M.

Since the above example is only hypothetical, it should not be construed as an argument for the continuation of the G.I. Bill. Rather, it seeks to point out *the need for further research* which will measure the overall effects of termination on society. For example, it would be helpful to know to what extent expenditures for education will drop if the Bill is terminated. It would then be advisable to discover at what level of cost would it be efficient for the state to make up for some, if not all, of this decline. This being determined, it would be necessary to discover what program or package of programs could accomplish the desired objectives at the lowest possible cost. For example, even if the "joint cost approach" of the G.I. Bill is deemed to be cost-effective, it may still be advisable to introduce some variant of the Scholarship Insurance proposal so as to capitalize on further cost reduction (as the preceding cost study would indicate to be the case).

It is also interesting to note that the Scholarship Insurance proposal could lead to public benefits outside the immediate realm of education and national defense. It should be expected, for example, to increase the capital market and thereby further the objective of economic growth by providing more physical capital *as well as* more human capital. Furthermore, increased private investment could lead to higher productivity -- which in turn could help reduce inflationary pressures.

While the focus of this study has centered around economic efficiency, it is important to consider that other criteria may influence the decisions of policy-makers. There is no compelling *priori* reason why economic efficiency should be the overriding determinant of public policy. For example, one may hold that education is a more worthwhile form of consumption than other consumer goods, regardless of the actual private demand (which can be a function of income as well as taste). It would then follow that public support of education could be warranted even beyond the level authorized by social benefits. Especially, it may be deemed desirable to provide assistance to those who are motivated toward education but possess only a limited ability to pay.

The above consideration could be a support for post-service education. On the other hand, another non-economic criterion -- that of equity -- tends to weigh against post-service educational benefits, especially now that the draft has ended. It is felt by many people that equals should be treated equally. However, as post-service education is used in widely varying amounts (and a proportion of veterans do not use it at all), post-service education rewards some veterans more than others regardless of their contribution in the Armed Services. While it may be argued that veterans desiring education are not to be considered equal, non-veterans may consider the current form of military compensation as overly generous whereas veterans may consider Service too high a price to pay relative to HEW aid.

In conclusion, as non-economic criteria are brought to bear on policy, economics cannot by itself preempt the function of policy-making. Yet, it is not without importance. If the G.I. Bill had been costed at two billion dollars rather than one billion, even the stronger supporter of the G.I. Bill may have found his resolve weakening. While economics or any form of scientific endeavor is not concerned with making policy, it can provide policy makers with information so as to render their decisions more intelligent and rational. It is toward this goal that this study aspires.

Chapter 5

Results and Implications

The list of policy issues which led to this study may now be addressed. Summary statements appear below, supported by substantiating references to the body of the report (Chapters 2-4).

General Role of the G.I. Bill

Since 1947, the proportion of an enlistee's compensation which is represented by the G.I. Bill has declined from 31% to 20%. During the transition to a volunteer force, in-service compensation became comparable with median civilian incomes. The G.I. Bill post-service benefit provided a 20% "bonus" attraction in the volunteer enlistment incentive package, and this role went relatively unchallenged during the transition period. (Figure 4.1)

President Ford's May 1975 proclamation of the end of the Vietnam Era included his request to Congress for a delimiting period of G.I. Bill eligibility. In evaluating the effects of termination, a major policy issue for the Department of Defense is the possible losses (in quality, number, and representativeness) in new enlistments. Related issues are the effect of varying employment levels, the effect on reenlistments, education in context with other incentives, the costs and comparative benefits of alternative programs, and the best offsetting management policy options. Information has been made available to assess these issues. (Figure 3.1, Table 3.10)

Losses in New Enlistments

If there is any serious concern for losses, it can be narrowed down to new enlistments of high school graduates into the Army. Although non-graduates are somewhat motivated by the G.I. Bill, the supply exceeds the demand by more than enough to compensate for any non-graduate losses. Similarly, the queue of high school graduates exceeds the service-stated requirements (FY1976) for the Navy, Marine Corps and Air Force. On the other hand, the Army is not expected to meet its self-stated high school graduate requirements even with the G.I. Bill. (Table 3.14, Figure 3.3)

Termination of the G.I. Bill would affect certain groups more than others. A few small homogeneous groups are strongly interested in G.I. Bill benefits while larger groups are less so. The distinguishing features are educational aspirations and age; secondary features are family status and race; unimportant is the intended branch of Service. Among high school seniors who are potential enlistees, only 29% plan Junior college or more -- and therefore express strong G.I. Bill interest. Furthermore, the greater part of the 1976 high school graduate queue does not come from the 1975 class, but from earlier classes where there are now large numbers with lower enlistment propensity. (Figure 2.7, Table 2.7; Table 3.8; Table 3.11)

It follows from the above that the *quality* impact would not be caused by G.I. Bill seekers being more desirable prospects but rather by the fact that any replacement is likely to be of lower quality, since the queue is only of modest size. Estimates within five percentage points are available as to the *quality* impact. It is certain that the measurement of professed interest leads to overestimates of absolute impact (40% to over 60%), and that underestimates (3%) result from consideration of the G.I. Bill as a primary, or independent enlistment incentive. Rather, the best estimate is that G.I. Bill termination would deplete 15% of the High School queue -- if no compensating management actions were taken. (Tables 2.4; 2.8; 3.5; 3.6)

Effect of Varying Employment Levels

Major changes in levels of unemployment or the influence of other exogenous factors would alter impact predictions. Disinclination for military enlistment has generally decreased over time. In fact, the queue now without the G.I. Bill would be comparable to the queue of a few years ago with the G.I. Bill. The G.I. Bill termination impact in the 1960's was about 25%. (Figure 2.8; Table 3.2)

It is important to note that unemployment and the G.I. Bill are overlapping, rather than independent influences. Many of those potential enlistees who would be lost as a result of an increase in employment are the same individuals who would be lost in the event of G.I. Bill termination. Also, separate study by the General Research Corporation suggests that anticipated changes in recruiting force size will have greater impact on enlistments than changes in unemployment. Substantial drops in 16-24 year-old populations after 1980 (as indicated by current census forecasts) could also impact significantly on the absolute number of potential enlistees. (Figure 2.8; Table 2.6; Table 3.6).

Effect on Reenlistments

Although G.I. Bill-motivated enlistees do have greater odds against reenlisting, and termination of the post-service G.I. Bill might eventually increase the reenlistment pool by 12%, the current pool is substantially larger than needed. Post-service G.I. Bill seekers are also diametrically opposed to in-service education seekers insofar as reenlistment is concerned. (Table 2.8)

Education in Context with Other Incentives

Educational benefits, in-service as well as post-service, are not in themselves major incentive factors, but are rather secondary motivators. In-service education correlates with the (post-service) G.I. Bill as an enlistment incentive, and each is most often cited in a package with three or more other incentives. This secondary role may explain why positive endorsement of the G.I. Bill does not correlate with negative deterrence in the event of termination. Those who do seek the G.I. Bill are, however, comparable to their peers in other motivators. (Figure 2.2; Tables 2.4, 2.5, 2.6, 2.3)

The Costs and Comparative Benefits of Alternative Programs

A number of substitutes for post-service G.I. Bill as an enlistment incentive are feasible. Alternative programs could range in cost from $21M yearly to $1,066M yearly. Considerable attention has been given to the reduction of costs by restricting the number of new users (15,000-260,000) and, to a lesser extent, the entitlement per user ($1,200-$4,400). Attention has also focused on increasing the returns which the Department of Defense will gain -- e.g., by requiring participation in the Reserves. Finally, attention has been given to the reduction of administrative burdens -- e.g., through a commercially-administered scholarship insurance program. (Table 4.1)

Whatever decision is made concerning post-service educational benefit programs, it is clear that the current G.I. Bill entails substantial economic rent. The post-service G.I. Bill may be responsible for approximately 15% of enlistments; only 23% who plan to enter service anticipate G.I. Bill usage; subsequent to enlistment, 68% plan usage. Historically, approximately 57% have actually used post-service G.I. Bill benefits. Furthermore, some of the G.I. Bill seekers are surplus to requirements. It could be argued that, as an enlistment incentive, the G.I. Bill provides at most 20,000 Army high school graduates and costs at least $1B (or $50,000 per enlistee). Before final selection of an alternative: (1) a judgment must be made as to whether the further depletion of Army high school graduate enlistees is tolerable; and (2) an evaluation should be made concerning the national impact of G.I. Bill termination -- both of which are outside the present study. (Chapter 4)

Management Options

Termination of the G.I. Bill will not put a major market segment abruptly out of reach, but will shift enlistment interest slightly downward. A feasible alternative is to market the in-service educational package. (Table 3.3; Table 2.2)

The greatest need - and the most obvious neglect to date - has been for a repackaging and marketing of in-service educational benefits. The best management options in this reappraisal are: (1) to develop new approaches to attract 19-25 year-old high school graduates who might consider enlistment as educational goal-related activity; (2) to organize and publicize a revitalized set of in-service education motivators; and (3) to settle the contingency planning for a post-service alternative to the G.I. Bill.

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APPENDIX A

Management and Staff Support Activities

During the period of research, frequent consultation and support activities were provided to OASD(M&RA). Assistance was also provided in the flow of information regarding the timing, development, and content of educational benefit policy options. The following documents were developed for these purposes and appear in chronological order.

	Page
Delayed Decision Diagram. A flow diagram of the decision options and expected sources of information (May).	95
Alternative Educational Benefit Programs (I and II). An information table of current (May-June) program parameters and the components of pending alternatives to G.I. Bill programs; a revised table to include the "Scholarship Bonus" . . .	96&97
Decision Chart: Should DoD Promote a Specific Post-Service Educational Benefits Program. A management tool to aid in the determination of the costs and benefits of current alternatives and the immediate or deferred selection of same (June-July).	98
Alternative Educational Benefit Concepts/and Score Sheet. A listing and explanation of several alternative program concepts; a "score sheet" for comparing programs with DoD objectives -- in order to elicit a consensus ranking of "current program concepts" (June-July).	99 100 101
G.I. Bill Termination - Army Information Papers. A report, summary, and editorial comment of Army research activity during the month of May (June-July).	102

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Army Recruit Probe Survey (8) - G.I. Bill. A table of selected percentage frequency responses to post-service educational benefit questions (G.I. Bill) by mental category/educational level (June-July). 103

Preliminary Draft: The Educational Benefits Impact Model. The "preliminary" educational benefits model -- developed to structure research efforts and guide DoD policy processes (July). 104

Discussion Chart: The Allocation of Post-Service Educational Benefit Funds. Designed to generate discussion and raise significant issues concerning the advantages and disadvantages of each allocation plan. Used in the first meeting of Service representatives on program alternatives and allocation options (July). 105

Papers on In-Service Education. Included are the following: In-Service information "fact sheets" on the Fall Semester of the 1974-75 academic year; charts showing "Service staff views of in-Service education" (as derived from interview discussions) and a subjective discussion on the value of In-service education (July-September) 106-111

Chart: Implementation of Educational Benefits Program. A modified Program Evaluation and Review Technique (PERT) chart of potential program implementation activity, significant events, and time estimates (September). 112

Congressional Hearings on G.I. Bill Termination. Included are notes of the hearings before the House Subcommittee on Education and Training of the Committee on Veterans' Affairs. Notes of the hearings before the Senate Subcommittee on Readjustment, Education, and Employment of the Committee on Veterans' Affairs have not been included. (September-October) 113

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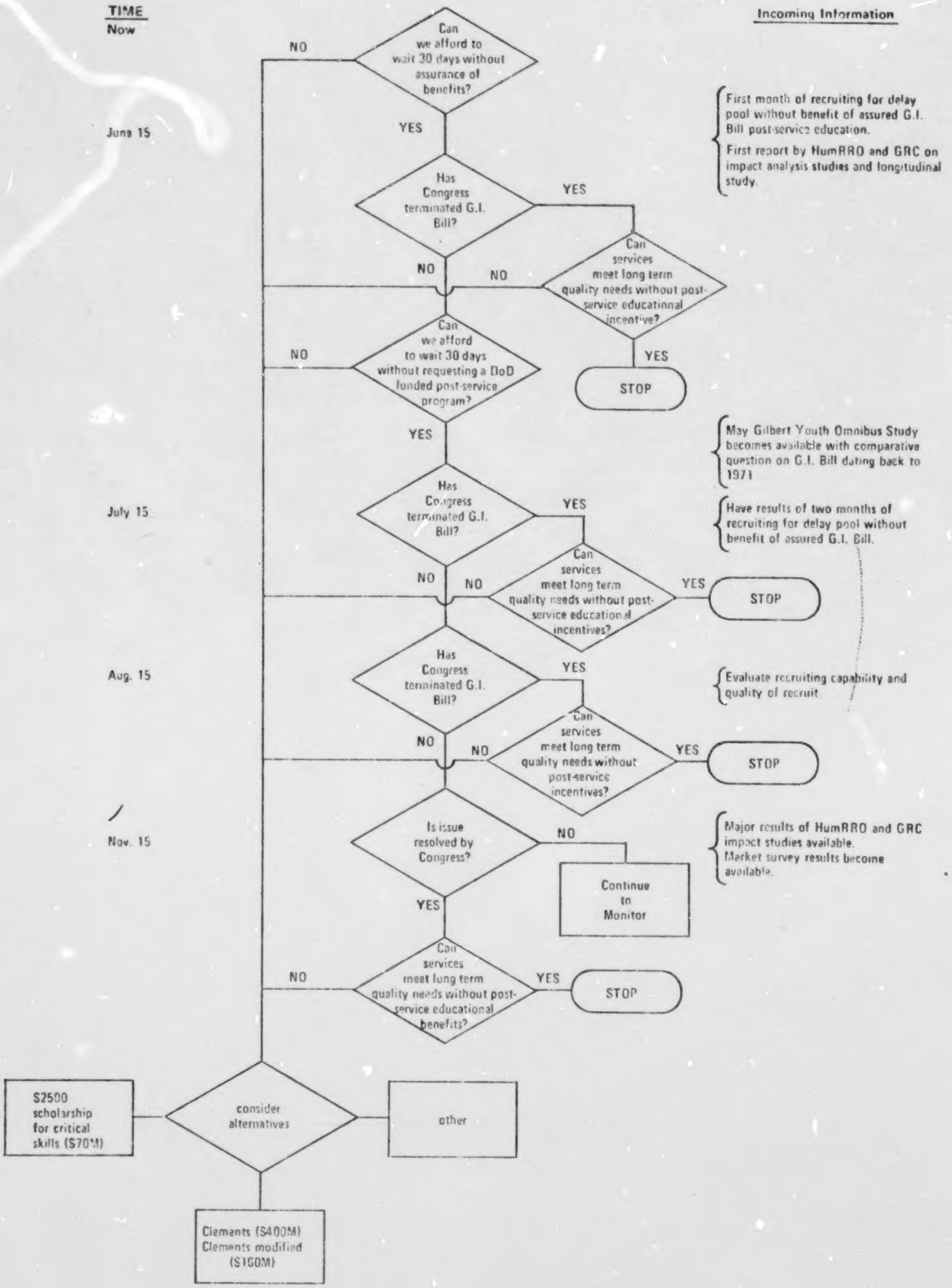
Scholarship Insurance as a Post-Service Educational Benefit. A G.I. Bill post-Service alternative developed by HumRRO, in consultation with OASD(M&RA) and Servicemen's Group Life Insurance (SGLI) representatives(October-current). 114-115

DELAYED DECISION DIAGRAM


TIME
Now
June 15
July 15
Aug. 15
Nov. 15
Incoming Information
Can we afford to wait 30 days without assurance of benefits?
NO
YES
Has Congress terminated G.I. Bill?
YES
Can services meet long term quality needs without post-service educational incentive?
NO
NO
YES
STOP
Can we afford to wait 30 days without requesting a DoD funded post-service program?
NO
YES
Has Congress terminated G.I. Bill?
YES
Can services meet long term quality needs without post-service educational incentives?
NO
NO
YES
STOP
Has Congress terminated G.I. Bill?
YES
Can services meet long term quality needs without post-service incentives?
NO
NO
YES
STOP
Is issue resolved by Congress?
NO
Continue to Monitor
YES
Can services meet long term quality needs without post-service educational benefits?
NO
YES
STOP
$2500 scholarship for critical skills ($70M)
consider alternatives
other
Clements ($400M) Clements modified ($160M)

First month of recruiting for delay pool without benefit of assured G.I. Bill post-service education.

First report by HumRRO and GRC on impact analysis studies and longitudinal study.

May Gilbert Youth Omnibus Study becomes available with comparative question on G.I. Bill dating back to 1971

Have results of two months of recruiting for delay pool without benefit of assured G.I. Bill.

Evaluate recruiting capability and quality of recruit

Major results of HumRRO and GRC impact studies available.

Market survey results become available.

ALTERNATIVE EDUCATIONAL BENEFIT PROGRAMS I (May 1975)

[for Delayed-Decision Review]

Program Parameters	Pending DoD Alternatives to Current GI Bill Programs			Current GI Bill Programs	
	The Clements Alternative [and *Modification*] (March 1975)	The Scholarship Alternative (April 1975)	Expanded DoD In-Service	V.A. Post Service	V.A. In-Service
WHO Eligibility	-Service ≥3 yrs -No retirees -Undergraduate level only *-Modification-critical skills area only*	-Service ≥3 yrs -No retirees or officers -Accepted by AHEAD or SOC participant prior to discharge -Limited to critical skills area	-All active duty -Service approval -Officers-2 yr. obligation	-Service >180 days -Discharge due to disability -Includes retirees and officers	-Service >180 days -Established need (educationally disadvantaged and/or V A. approval
WHAT Benefits	-18 mos. entitlement/3 yrs service -1 mo. entitlement/2 mos. additional service; max. of 36 mos./6 yrs. service -In-service benefits program	-Service ≥3 yrs. for specified scholarship (e.g., $2500) -Contractual agreement in lieu of other incentives	-Remedial and H.S. completion-100% entitlement -Voc/Tech programs-tuition assistance -Institutions of higher learning-tuition assistance -Correspondence courses-DANTES, tuition assistance	-1 1/2 mos. entitlement/ 1 mo. service -Maximum of 36 mos. -Extension allowance of 9 mos. to total 45 mos.	-PREP-free entitlement -Voc/Tech programs-tuition assistance -Institutions of higher learning-tuition assistance (SOC) -correspondence courses-tuition assistance-under CMF and DANTES
WHEN Time Frame of Eligibility	New in-service + 5 yrs. after discharge	Current in-service + 4 yrs after discharge (must start within one year after discharge)	-Prior to discharge or release from active duty -On-duty time for H.S. completion and remedial education (will require change in current appropriations language)	10 years after discharge	-Prior to discharge or release from active duty
WHERE Program Level and Recipient	-Accredited schools with classroom participation -Undergraduate only -In-service options: A. <3 yrs./tuition assistance in specified areas; B. >3 yrs./tuition asst. in related skill areas; C. C. >3 yrs./option for asst. to be counted against basic entitlement	-Limited to associate, baccalaureate, or graduate degrees only at SOC or AHEAD college -Full-time students only	-Service approved educational programs -Service approved, accredited institutions	-Institutions of higher learning at graduate, undergraduate levels -Below college level schools and programs -O.J.T.; apprenticeships; work-study	-PREP-remedial and refresher H.S. level -Voc/Tech levels -College-level courses -Flight, correspondence
HOW Method of Funding	-$200/month of entitlement -No dependency allowance	-$2500 (proposed) scholarship -Paid directly to participating college	-H.S. and remedial-100% service-funded tuition assistance (will require change in current appropriations language) -Other service approved institutions-75% service-funded tuition assistance -Paid to individual as reimbursal	-Full-Time-$270/mo. + dependency allowance -Part-Time-proportionate entitlement -Paid to individual	-PREP-free entitlement -Tuition Assistance-75% of total course costs; must complete courses (does not count against basic entitlement)
WHY Service Goals	-Major enlistment incentive for high quality personnel -Enlistment + first reenlistment in critical skills area -Improved capabilities of the services	-Major enlistment incentive for high quality personnel -Enlistment in critical skills area (high turnover rate of quality personnel) -Improved capabilities of the services	-General enlistment incentive -Increase ability levels, motivation, personal and service capabilities -Improved organizational capacity -Reenlistment enhancement through individual advancement	-Major enlistment incentive for quality personnel -Improved capabilities of the services -Historical: readjustment, compensation	-General enlistment incentive -Increase ability levels, motivation, personal and service capabilities -Improved organizational capacity -Reenlistment enhancement through individual advancement
COST Per/Year	-$400 M (projected steady state) *-Modification-$100 M (projected steady state)* -In-service program-$85 M	-$45 M total Army (projected steady state) -$70 M DoD (projected steady state) -In-Service: same as present	$189.2 M [includes: $84.5 M DoD in-service, $104.7 M V.A. FY76 ($35 M below college, $40.5 M college, $29.2 correspondence)]	-$3.8-4.2 B (FY76, V.A.) -$1.0±.25 B (projected s.s. for future service strength requirements)	-PREP-$25 M -Other $87.5 M (includes BCL vocational; V.A., FY76)
MANPOWER 1. Utilization 2. Reenlistment 3. Accession Target Market	1. 50% (assumed; reduction by restrictions) 2. On basis of increasing entitlement and in-service program; post service, negative incentive 3. Moderately controlled quality target; flexible	1. 20% total recruits (60% original program contract recruits-Army est.) 2. Negative incentive for controlled turnover; option for maintenance of benefits through reenlistment 3. Controlled quality target; restrictive	1. Current DoD + V.A. 2. On basis of individual advancement opportunities 3. General	1. 57% (current); historical cost of $4100/user 2. On basis of increasing entitlement; negative incentive 3. General	1. PREP-317,060; tuition asst.-400,000 (college-level-160,000; college-level participation-4.1% career, 6.3% non-career) (by enrollment, projected FY75) 2. On basis of individual advancement opportunities 3. General
ANALYSIS REQUIREMENTS	**Short-Range** -Monthly review and evaluation of delayed-pool recruiting without GI Bill assurances; field survey and evaluation of recruiting capabilities -GI Bill termination effect on current project AHEAD and SOC initiatives -GI Bill termination effect on general quality needs and the quality mix of new enlistments -Review of enlistment bonuses without GI Bill assurances -Review of May Gilbert Youth Omnibus Survey	**Mid-Range** -Controlled experiment of educational benefits incentive-impact on current accession market -The loss in number and population representativeness of new enlistments and reenlistments resulting from GI Bill termination; critical skills area evaluation -Major longitudinal study results; the variance between intentions, perceptions, and actual enlistment behavior -The marginal value of post service, in-service, expanded in-service, and pre-service benefits as enlistment and/or negative incentives		-The effect of varying levels of employment on manpower estimates -The costs and comparative benefits of alternative educational benefit programs -Evaluation of the administration, coordination, delivery systems, service goals, and parameter variables within alternative program areas; evaluations based on individual service manpower needs **Long-Range/Results** -Evaluation of alternatives based on foregoing research and analysis -Recommendations; ranking of alternatives	

ALTERNATIVE EDUCATIONAL BENEFIT PROGRAMS II (June 1975)

[for Delayed-Decision Review]

Program Parameters	Pending DoD Alternatives to Current GI Bill Programs			Current GI Bill Programs	
	The Clements Alternative [and *Modification*] (March 1975)	The Scholarship Bonus Alternative (June 1975)	Expanded DoD In-Service (Minimum Alternative)	V.A. Post Service	V.A. In-Service
WHO Eligibility	-Service ≥ 3 yrs -No retirees -Undergraduate level only -*Modification-critical skills area only*	Service ≥ 4 yrs -No retirees or officers -Accepted by AHEAD or SOC participant prior to discharge(?) -Limited to critical skills area	-All active duty -Service approval -Officers-2 yr. obligation	-Service > 180 days -Discharge due to disability -Includes retirees and officers	-Service > 180 days -Established need (educationally disadvantaged and/or V.A. approval
WHAT Benefits	-18 mos. entitlement/3 yrs service -1 mo. entitlement/2 mos. additional service; max. of 36 mos./6 yrs. service -In-service benefits program	-Contractual agreement in lieu of other incentives -As the veteran chooses	-Remedial and H.S. completion-100% entitlement -Voc/Tech programs-tuition assistence -Institutions of higher learning-tuition assistance -Correspondence courses-DANTES, tuition assistance	-1 1/2 mos. entitlement/ 1 mo. service -Maximum of 36 mos. -Extension allowance of 9 mos. to total 45 mos.	-PREP-free entitlement -Voc/Tech programs-tuition assistance -Institutions of higher learning-tuition assistance (SOC) -correspondence courses-tuition assistance-under CMF and DANTES
WHEN Time Frame of Eligibility	New in-service + 5 yrs. after discharge	New in-service + anytime after discharge	Prior to discharge or release from active duty -On-duty time for H.S. completion and remedial education (will require change in current appropriations language)	10 years after discharge	-Prior to discharge or release from active duty
WHERE Program Level and Recipient	-Accredited schools with classroom participation -Undergraduate only -In-service options: A. < 3 yrs./tuition assistance in specified areas; B. > 3 yrs./tuition asst. in related skill areas; C. C. > 3 yrs./option for asst. to be counted against basic entitlement	-As the veteran chooses	-Service approved educational programs -Service approved, accredited institutions	-Institutions of higher learning at graduate, undergraduate levels -Below college level schools and programs -O.J.T.; apprenticeships; work-study	-PREP-remedial and refresher H.S. level -Voc/Tech levels -College level courses -Flight, correspondence
HOW Method of Funding	$200/month of entitlement -No dependency allowance	-$3000 scholarship -Paid directly to the veteran on discharge -Using current enlistment bonus legislation	-H.S. and remedial-100% service-funded tuition assistance (will require change in current appropriations language) -Other service approved institutions-75% service-funded tuition assistance -Paid to individual as reimbursal	-Full-Time-$270/mo. + dependency allowance -Part-Time-proportionate entitlement -Paid to individual	-PREP-free entitlement -Tuition Assistance-75% of total course costs; must complete courses (does not count against basic entitlement)
WHY Service Goals	-Major enlistment incentive for high quality personnel -Enlistment + first reenlistment in critical skills area -Improved capabilities of the services	-Major enlistment incentive for high quality personnel -Enlistment in critical skills area (high turnover rate of quality personnel) -Improved capabilities of the services	-General enlistment incentive -Increase ability levels, motivation, personal and service capabilities -Improved organizational capacity -Reenlistment enhancement through individual advancement	Major enlistment incentive for quality personnel -Improved capabilities of the services -Historical: readjustment, compensation	-General enlistment incentive -Increase ability levels, motivation personal and service capabilities -Improved organizational capacity -Reenlistment enhancement through individual advancement
COST Per/Year	$400 M (projected steady state) -*Modification-$100 M (projected steady state)* -In service program $85 M	$45 M total Army (projected steady state) -$70 M DoD (projected steady state) -In-Service: same as present	-$189.2 M [includes: $84 5 M DoD in-service; $104.7 M V.A. FY76 ($35 M below college, $40.5 M college, $29.2 correspondence)]	-$3.8-4.2 B (FY76, V.A.) -$1.0±.25 B (projected s.s. for future service strength requirements)	-PREP-$25 M -Other-$87.5 M (includes BCL vocational; V.A., FY76)
MANPOWER 1. Utilization 2. Reenlistment 3. Accession Target Market	1. 50% (assumed; reduction by restrictions) 2. On basis of increasing entitlement and in-service program; post service, negative incentive 3. Moderately controlled quality target; flexible	1. 20% total recruits (60% original program contract recruits-Army est.) 2. Option for maintenance of benefits through reenlistment 3. Controlled quality target; restrictive	1. Current DoD + V.A. 2. On basis of individual advancement opportunities 3. General	1. 57% (current); historical cost of $4100/user 2. On basis of increasing entitlement; negative incentive 3. General	1. PREP-317,060; tuition asst.-400,000 (college-level-160,000; college-level participation-4.1% career, 6.3% non-career) (by enrollment, projected FY75) 2. On basis of individual advancement opportunities 3. General
ANALYSIS REQUIREMENTS	**Short-Range** -Monthly review and evaluation of delayed-pool recruiting without GI Bill assurances; field survey and evaluation of recruiting capabilities -GI Bill termination effect on current project AHEAD and SOC initiatives -GI Bill termination effect on general quality needs and the quality mix of new enlistments -Review of enlistment bonuses without GI Bill assurances -Review of May Gilbert Youth Omnibus Survey **Mid-Range** -Controlled experiment of educational benefits incentive-impact on current accession market -The loss in number and population representativeness of new enlistments and reenlistments resulting from GI Bill termination; critical skills area evaluation -Major longitudinal study results; the variance between intentions, perceptions, and actual enlistment behavior -The marginal value of post service, in-service, expanded in-service, and pre-service benefits as enlistment and/or negative incentives -The effect of varying levels of employment onmanpower estimates -The costs and comparative benefits of alternative educational benefit programs -Evaluation of the administration, coordination, delivery systems, service goals, and parameter variables within alternative program areas; evaluations based on individual service manpower needs **Long-Range/Results** -Evaluation of alternatives based on foregoing research and analysis -Recommendations; ranking of alternatives				

DECISION CHART:
SHOULD DoD PROMOTE A SPECIFIC POST-SERVICE EDUCATIONAL BENEFITS PROGRAM?

	Minimum Program	← Current Options →				Maximum Program
Decision Factors	Expand DoD In Service	Defer Selection	Select Scholarship Bonus	Select Clements - Modified	Select Clements	Current V.A. G.I. Bill
Steady State Cost	Budget / In-Service / Post-Service From VA to DoD / 104 (max) / 0 Current DoD / 85 / 0 $189M(max) / 0	Budget / In-Service / Post-Service From VA to DoD / ? / ? Current DoD / 85 / 0 ? / ?	Budget / In-Service / Post-Service From VA to DoD / 104 (max) / 100 Current DoD / 85 / 0 $189M(max) / $100M	Budget / In-Service / Post-Service From VA to DoD / 104 (max) / 100 Current DoD / 85 / 0 $189M(max) / $100M	Budget / In-Service / Post-Service From VA to DoD / 104 (max) / 400 Current DoD / 85 / 0 $189M(max) / $400M	Budget / In-Service / Post-Service Stays in VA / 113 / 1,300* DoD / 85 / 0 $198M / $1,300M (*FY76 budget is $4,000M)
Program Features	–H.S. and remedial: 100% tuition –Other: 75% tuition	To be developed from service needs and results of analysis.	–$3000 Enlistment Bonus –In lieu of other incentives –Limited to critical skills –Paid directly to user (on discharge?)	–Post-Service: Service ≥ 3 years –½ mos. entitlement/1 mo. Service (36 max. ben.) –Eligible thru 5 yrs. after discharge –Pays $200/mo. (No dependency) –No graduate work supported Critical Skills only	All Skills	–Post Service: Service 180 days –1½ mos. entitlement/ 1 mo. Service (45 max. ben.) –Eligible thru 10 yrs. after discharge –Pays $270/mo. + dependency
Implementation Action Required Now	–Change DoD appropriations language to permit fully-funded, on-duty H.S. completion –Change budget for FY76	–Insure any bill takes effect 30 days after passage + DEP –Proceed with analyses –Keep contingency plan in case Congress terminates G.I. Bill	–Settle eligibility criteria & administrative details –Possible language change in PL93-277 –Change budget for FY76	–Prepare specifics of program –Draft legislation –Submit legislation to Congress		No action; will continue unless terminated by Congress
Advantages	–Minimum benefit required –President indicated support –Lowest cost	–Increased information enters decision –Continues present program	–Ease of implementation –Actively supports President's termination request	Focused on specific accession needs, especially Army's –Actively supports President's termination request.	–Similar to current Post-Service with limiting factors –Maintains incentive	–Status-quo –Effective program
Disadvantages	–May not be adequate incentive –May lower quality	–Appearance of indecision –May have adverse effect on recruitment	–Immediate budget increase –DoD's formal selection could speed Congress to stop G.I.Bill –May not be adequate incentive –Vet could use money otherwise –Law expires June 30, 77	–DoD's formal selection could speed Congress to stop G.I. Bill –Decreased incentive from current G.I. Bill		–Excessive costs –Burden to DoD, if DoD assumed the budget –Administration opposition
Post-Decision Program Development	Improve management to reflect incentive impact and quality requirements	Prepare DoD interim status paper for Congress –Review monthly –Final decision NLT Nov 15, 75	Iron out eligibility criteria & administrative details	–How to control cost; Function of: –pre-service eligibility rules? –in-service criticality of skill? –post-service usage constraints? –simply total budget constrained?		–Eventually streamline

HUMAN RESOURCES RESEARCH ORGANIZATION

300 North Washington Street
Alexandria, Virginia 22314
(703) 549-3611

June 10, 1975

ALTERNATIVE EDUCATIONAL BENEFIT CONCEPTS

There is an expansive variety of educational benefit alternatives. This listing provides an overview of several alternative areas, and is limited to standard program variations.

Pre-Service

Concept: Full time, fully-funded education prior to service; or, percent of funding; or, integrated plan of pre-service, in-service, post-service.

Variations: Degree of pre-service funding and required term of service; 2+3+2 plan--2 years of pre-service education + 3 years of service (+ in-service education option) + 2 years of post-service benefits (+ Reserve service option).

Status: There are presently no pre-service enlisted education programs with obligated service requirements (note, however, officer pre-service programs, ROTC, Platoon Leader Course, Nuclear Propulsion Officer Candidate Program, etc.). Pre-service vocational training (with obligated service requirements) is an incentive area which has not been fully explored. There appears to be little Service enthusiasm for this idea, however. The Services have indicated that they would prefer to use their own training programs.

Expanded In-Service

Concept: Expand current DoD programs to include current V.A. in-service (minimum benefit requirements); expand current program tuition assistance to level of 75%-100%; also, expanded below-college level and vocational/technical programs.

Variations: Military skills requirements, military utilization potential, years of service commitment, and quality-level requirements; also, continuation option for post-service benefits on 1 year/1 year basis.

Status: In-service benefits at current DoD and V.A. levels are considered minimum educational benefit requirements. Expanded in-service benefits and tuition assistance (above current levels) are alternative areas which may provide increased incentives for enlistment and reenlistment. It is not altogether certain, however, whether this incentive program will (1) satisfy the Army's need to recruit for critical skills, or (2) maintain overall quality levels.

Continued In-Service

Concept: Maintain in-service, part-time tuition assistance program for continued post-service entitlement.

Variations: Percentage entitlement; skills requirements; term of service; obligated Reserve service.

Status: This concept has not been included in current discussions.

Post-Service Variations

Concept: Maintain principles of current V.A. post-service program and develop variations of program parameters according to service needs.

Variations: Changes in eligibility requirements, benefits, time-frame, and methods of funding affect cost estimates and target accession markets. Variations, therefore, can be developed according to specific service goals and within feasible budgetary limits. The Clements Alternative and Clements Modified are examples of Post-service variations based largely on current G.I. Bill principles.

Status: There are cost estimates for variations of several post-service program elements. The Clements Alternative and Clements Modified are now under discussion as pending DoD alternatives to current G.I. Bill programs.

Educational Grant

Concept: Educational grant (scholarship) based on years of enlistment/contractual obligation.

Variations: Educational grant (e.g., $3,000/3 year enlistment); use of enlistment bonus; increasing scale based on a maximum grant of $6,000/10 years of service. Variations may also include eligibility restrictions by critical skills enlistment, quality level, prior achievement criteria, etc.

Status: Cost estimates for general educational grant programs, without limiting criteria, are relatively high when compared to other alternatives. The Army Scholarship and Scholarship Bonus Alternatives are outgrowths of this concept--with refinements and specific eligibility criteria. A general grant program without restrictions, however, has received generally low ranking among alternatives. The Scholarship Alternative (April, 1975) and the Scholarship Bonus (June, 1975) are now under discussion as pending DoD alternatives to current G.I. Bill programs.

Student Loan

Concept: Money to be borrowed by student on a sliding scale.

Variations: Interest (e.g., 7%) to be paid by DoD while individual is in school; $6,000 loan/3 year enlistment; maximum of $9,000 loan/6 year enlistment; first repayment due 90 days after graduation, with total repayment to be completed within 10 years of graduation. Variations based on amount of loan, rates, eligibility criteria, etc.

Status: Recovery rates on student loans are generally low. Administrative costs can likewise be expected to add considerably to total cost estimates. For these general reasons, loan concepts have not received favorable response.

Educational Savings Plan/Matching Grant

Concept: Individual requests payroll deduction for deferred educational savings account; entitlement added either on percent or matching (one for one) grant basis.

Variations: Limits on total entitlement (e.g., $2700/3 year enlistment with maximum of $5400/6 year enlistment). Variations on totals, percentage/matching/years of enlistment, eligibility criteria, etc. are numerous.

Status: Matching grants tend to favor those individuals who are financially able to save--as opposed to those individuals with family responsibilities and increased financial commitments. It is possible, however, to develop a variation of the savings plan concept where the amount of benefit is less dependent on total savings (ability to save) and is directed (on a % basis) toward years of service and/or skills area commitments. The Army fears that resulting inequities and the actual limitations on an individual's capacity to save will "create creditability problems" here.

Matching Credit

Concept: Match academic credits for post-service entitlement with credits earned while in service.

Variations: Maximum credit entitlements/years of enlistment (e.g., 48 credits/3 year enlistment; 60 credits/4 year enlistment). Limitations on eligibility criteria; skills area requirements.

Status: Inequities would result from the application of this concept. Educational opportunities vary according to the nature of an individual's job responsibility (time requirements) and the accessibility of educational programs (location of service). For general reasons of inequity, therefore, the Army considers this option unacceptable.

Serviceman-Citizen-Reservist (Bradley Commission)

Concept: Include Reserve service options for additional post-service entitlement.

Variations: 1 year post-service entitlement/each 2 years of active duty; additional educational entitlements according to additional years of active duty and/or Reserve service. Variations same as post-service, with inclusion of incentive for Reserve enlistment.

Status: This concept has not been fully explored as an "option." Reserve enlistment incentives should be seriously studied, however, as extensions of long-term educational benefit program packages. The following concept, therefore, can be considered as one such area for further study:

Tuition Assistance for Non-Prior Service Reserve Personnel

Concept: % entitlement for 6 year standard Reserve enlistment; % entitlement for reenlistment.

SCORE SHEET

FUNDAMENTAL DOD OBJECTIVES

PROGRAM CONCEPTS[1]	1. Enlistment Incentive for Hi-Quality Personnel		2. Reduction of Negative Incentives for Reenlistment	3. Reduction of Cost vis-a-vis current VA GI Bill	4. Provision of a General Enlistment Incentive	5. Performance, Motivation, Personal & Services Capabilities, & Organizational Capacity
	a) All Skills	b) Critical Skills				
A. PRE-SERVICE - Full time, fully funded education prior to service, or percent of funding for post-education service obligation.						
B* EXPANDED IN-SERVICE- Expand current DoD programs to include current V.A. in-Service (minimum requirements).						
C. CONTINUED IN-SERVICE - Maintain in-service, part-time tuition assistance program for veterans as post-service program.						
D* POST-SERVICE VARIATIONS - Maintain principles of current V.A. post-service program and develop variations of program parameters according to service needs. Current V.A. System						
E* Clements						
F* Clements Modified						
G. EDUCATIONAL GRANT - Educational Grant (scholarship) based on years of enlistment/contractual obligation. Army Scholarship						
H* Scholarship Bonus						
I. STUDENT LOAN - Money to be borrowed by student on sliding scale; interest paid by DoD while student is in school.						
J. EDUCATIONAL SAVINGS PLAN/MATCHING GRANT - Individual requests payroll deduction for deferred educational savings account; entitlement added on percent or matching (one for one) grant basis.						
K. MATCHING CREDIT - Match academic credits for post-service entitlement with credits earned while in service.						
L. SERVICEMAN/CITIZEN/RESERVIST - Include Reserve service options for additional post service entitlement (post service variation).						

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[1] See accompanying paper for more complete description of concepts, variations, and status.

* Pending DoD alternatives

HUMAN RESOURCES RESEARCH ORGANIZATION

300 North Washington Street
Alexandria, Virginia 22314
(703) 549-3611

11 June 1975

MEMORANDUM FOR: OASD(M&RA)

SUBJECT: G.I. Bill Termination - Army Information Papers

Summary of Relevant Content

I. Servicemen's Opportunity College - Reports

A. Benefits termination would cause local economy "multiplier factor" effect (e.g., losses to State of California of $1.2B; San Diego County, $425M).
B. Decrease in total college enrollments due to termination anticipated to be 1.5M; reduced dollar flow to institutions.
C. College and Community reaction - little awareness of impending termination; 50-95% of current vets would be unable to continue in college without G.I. Bill benefits.
D. College Student Aid Officers - $2500 scholarship too limited in amount.

II. USAREC

A. Estimates 50% of current DEP will request active duty prior to 1 July or release from obligation.
B. Will require 3,818 additional accessions; expand training load by 1,661 trainee man-years; add annual training and accession costs of $7M; and have a general lowering effect across the board on quality-related training and performance indices.
C. Anticipates "loss of faith among enlistees and influencers".

III. Army Recruit "Probe 7" Data (HSG, n=1063)

A. Aspects of G.I. Bill considered "very important" to high school graduates (by % strength of response)
    1. length of eligibility after discharge - 75%
    2. amount of monthly living expenses - 74%
    3. length of education after leaving service - 73%
    4. availability of college education - 69%
    5. availability of voc/tech training - 59%

B. 52% of H.S.G. believed G.I. Bill educational benefits were a "firm part" of enlistment contract.
C. 28% indicated they would cancel enlistment, if given the opportunity, in the event G.I. Bill benefits were rescinded; 42% would not; 30% not sure.

IV. Quality Standards

A. The Army is not willing to lower quality standards to meet strength requirements.
B. High School Graduate goals will likewise be given higher priority than Category I-IIIa accession goals.

Editorial Comment

The Army is a staunch believer in the power of educational benefits to attract quality recruits. And, although executive economizers may accuse the Army of being alarmist in its reaction to the President's proposal, there is significant cause for immediate action. This is not to suggest that extreme interpretations of inconclusive data be made here. It is only to emphasize the fact that there is a reasonable basis - in previous and current research findings - to justify the apprehensive attitude of the Army.

General agreement is indicated on the need to "come up with a DoD proposal in time to be effective upon termination of the current G.I. Bill". Fears of immediate loss in quality cannot be allayed, however, while the threat of G.I. Bill termination remains constant. Current and future enlistees must have immediate assurances that educational benefits will be available to them. Public assurances can only be provided if: 1) the DoD announces an acceptable alternative package, or 2) a language change is made in the President's proposal to extend grace-period eligibility 30 days beyond termination.

The campaign to include a language change in the terminating legislation would appear to be most desirable at this time. Pressures to amend the current proposal should not, however, act in such a way as to speed the legislative process - i.e., by indicating DoD preparedness to cope with the effects of the amended legislation. The preparation of an interim status paper for submission to Congress may be helpful here in laying out the current state of affairs (and especially, Army fears) within the DoD.

"Coming up with a DoD proposal in time to be effective upon termination of the current G.I. Bill" should also mean that a contingency plan is available and ready to be promoted as an alternative - should the need be apparent.

The legislative process will be slow enough to allow adequate room for maneuverability. Immediate promotion of an alternative benefits package, however, will only act to speed the process and transfer the budgetary burden much sooner than might otherwise be expected. Within the environment of assured benefits to new recruits - satisfying the Army's need for quality accessions - it would be advantageous to approach alternative program proposals with discriminating caution. A carefully scheduled decision process would thereby enable DoD to simultaneously reduce apprehension and utilize the profits of advanced knowledge.

Army Recruit Probe Survey (8) - G.I. Bill

EFFECT OF CHANGES IN CURRENT G.I. BILL EDUCATIONAL BENEFITS ON ENLISTMENT DECISIONS AMONG SELECTED GROUPS
(ARMY RECRUIT PROBE 8, 2-6 JUNE 1975)

Mental Category/ Educational Level	(7) "I definitely would not have enlisted if ...."							
	A. Could get at most 27 months, instead of 36 months, after discharge	B. Could not get vocational or correspondence school training after discharge	C. Could get at most $200/mo. (without dependency) instead of current $270/mo with dependency	D. Could get at most 18 months of education after discharge	E. Could not get a college education after discharge	F. Had to enroll within 5 years after discharge or lose school benefit, instead of current 10 year limitation	G. Would not be eligible for education benefit unless honorably discharged after term of first enlistment	H. Would not receive living expenses, but cost of tuition and books would be paid.
Mental Category I & II (n=397)	5%	9%	8%	11%	26%	5%	6%	8%
Mental Category IIIa (n=495)	5%	7%	5%	8%	20%	6%	5%	8%
Total HSG (n=935)	5%	8%	5%	8%	20%	4%	6%	7%
Total College (n=310)	7%	12%	11%	14%	33%	7%	8%	12%

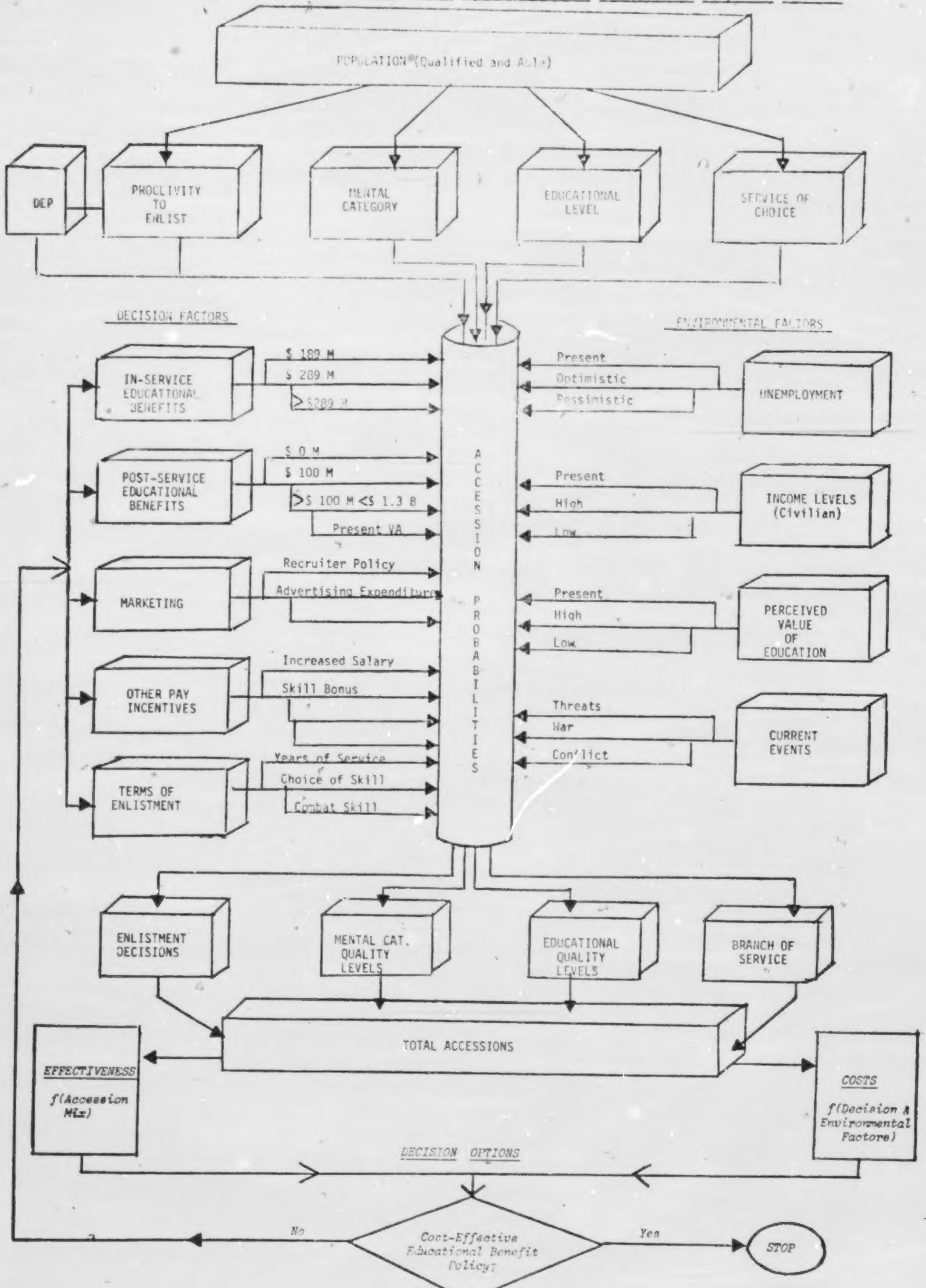
RESPONSES TO POST-SERVICE EDUCATIONAL BENEFIT QUESTIONS BY SELECTED GROUPS (ARMY RECRUIT PROBE SURVEY 8, 2-6 JUNE, 1975)

Maximum Effect

Minimum Effect

MENTAL CATEGORY/ EDUCATIONAL LEVEL	(6)(E) A college education when I get out of service: available and expect to take advantage	(7) I definitely would not have enlisted: (e) could not get a college education after I left the service	(8) Very important to me: (A) A college education after leaving service	(9)(1) The benefit(G.I. Bill) is a firm part of my enlistment contract	(10) If the G.I. Bill were totally rescinded: (1) I would cancel (my enlistment)	MEAN SCORE
A. Mental Category I & II (n=397)	66%	26%	66%	50%	27%	47%
B. Mental Category IIIa (n=495	60%	20%	57%	43%	23%	40.6%
C. Total HSG (n=935)	60%	20%	59% *[Probe 7, 69%]*	46% *[Probe 7, 52%]*	21% *[Probe 7, 28%]*	41.2% *[49.7%]*
D. Total College (n=310)	75%	33%	80%	60%	35%	56.6%

Preliminary Draft: The Educational Benefits Impact Model



DISCUSSION CHART:

How Should Post-Service Educational Benefit Funds Be Allocated Among the Services?

QUESTIONS FOR DISCUSSION:

What are the advantages and disadvantages of these allocation plans in terms of their:

	Allocation Plan I				Allocation Plan II				Allocation Plan III				Allocation Plan IV			
	Proportional to Current Accessions				Proportional to Accession Objectives				Proportional to Shortages				Proportional to Losses			
	Sub-Plan				Sub-Plan				Sub-Plan				Sub-Plan			
	total	HSGs	cat. I+IIs	crit skill	total	HSGs	cat. I+IIs	crit skill	total	HSGs	cat. I+IIs	crit skill	total	HSGs	cat. I+IIs	crit. skill
1.) Ability to counteract the effects of G.I. Bill termination?	Incentive impact? Quality levels? Service capabilities? Recruitment?															
2.) Impact on internal Service objectives? A.) immediate? B.) long-term?	Skills area needs? Negative incentives for reenl; turnovers? Specific target mkts? Improved economic conditions environ?															
3.) Impact on overall DoD objectives? A.) immediate? B.) long-term?	Total DoD manpower strength levels? Operational impact? Education initiatives? Overall effectiveness?															
4.) Effect on internal Administrative program needs?	Discretionary administration? DoD specificity? Internal program targets?															
5.) Requirements for further analysis?	Minimum needs? Effects of G.I. Bill? Service goals? Effectiveness? Alloc. equity v. needs															

In-Service Training Under the GI Bill

- FACT SHEET -

- The number of persons training under the GI Bill while on active duty reached an all-time high of 93,821 in November 1974: 4.4 percent of the active military strength. Of this number, 19,233 were training in institutions of higher learning - also an all-time high.
- Of service personnel trained during FY74, 26.2 percent trained at the college level and 73.8 percent in schools other than college.
- There was an overall 10.5 percent increase for service personnel in training between November 1973 and November 1974; service personnel in college training rose 22.6 percent; the number in correspondence training rose 9.0 percent.
- While the number of persons on active duty has declined, the number of service personnel using training benefits has increased.
- 9.1 percent of service personnel in training were full-time. Of the personnel training in college, 36.8 percent were full-time.
- Service personnel trainees have had a greater percentage of their number train in schools other than college than either peacetime post-Korean or Vietnam veterans.
- 52.3 percent of all service personnel ever in training through November 1974 were high school graduates; 21.4 percent had one or more years of prior college education.
- The cumulative number of educationally disadvantaged service trainees ever trained increased in the period November 1973 to November 1974 from 85,649 to 142,059, or 65.9 percent.
- As of November 30, 1974, the distribution of active duty personnel in training included:

	Army	Navy	Marine Corps	Air Force	Other
% of active duty personnel CY74	3.8	4.2	2.6	5.4	N/A
% of service personnel in training Nov.'74	31.7	24.9	5.4	36.2	1.8
% of service personnel ever trained	37.2	20.6	9.2	31.8	1.2

Source: Dept. of Veterans Benefits, Veterans Administration, "Veterans Benefits Under Current Educational Programs," Information Bulletin DVB IB 20-75-3, November 1974.

In-Service Correspondence Training Under the GI Bill

- FACT SHEET -

- Service personnel enrollments in correspondence training increased by nine percent from November 1973 to November 1974; correspondence trainees at the college level (for all enrollees, in-service and post-service) comprise less than one percent of all correspondence trainees.
- The greatest number of service personnel in training at the end of November 1974 were in correspondence training (other than college): 67,902 trainees. These correspondence trainees comprise 72.4 percent of all service persons in training during this period.
- Service personnel in correspondence training (other than college) during FY74 accounted for 39 percent of all service persons in training that year.
- Service personnel who have trained under the current GI Bill through November 1974 have had a greater propensity to take correspondence training (43 percent cumulative) than either Vietnam era veterans (15.8 percent) or peacetime post-Korean conflict veterans (26.2 percent).
- Of all enrollees (in-service and post-service) training in correspondence schools, 0.1 percent were training in public facilities.
- Since November 1972, the proportion of total trainees taking correspondence training has been falling. This may have occurred for three reasons: 1) compensation for completed correspondence training was decreased from 100 percent to 90 percent after 1 January 1973; 2) affirmation of enrollment was required; and 3) service personnel were required to receive the concurrence of their unit education officer prior to taking correspondence training.
- Percentage distribution of service personnel ever in training: college correspondence 0.2 percent (undergraduate 0.1., non-degree 0.1); post-high school vocational or technical correspondence 8.9 percent, other vocational or technical correspondence 33.7 percent, high school correspondence 0.2 percent.

SOURCE: Dept. of Veterans Benefits, Veterans Administration, "Veterans Benefits Under Current Educational Programs," Information Bulletin DVB IB 20-75-3, November 1974.

Table 13. SERVICE STAFF VIEWS OF IN-SERVICE EDUCATION

	ARMY	NAVY	MARINE CORPS	AIR FORCE
Objectives	Self-enhancement Increase productivity	Up-grade individual Enhance fleet readiness	Augment training Provide HS diploma or equiv. for all EM	Career growth Enhance svc. attractiveness Increase retention
Should benefits be expanded?	Only in PREP and tuition assistance for officers	Yes	Perhaps	Yes
New programs?	National Apprentice Standards	No	Want to re-institute Associate Degree Program. More vocational.	No
Is there a saturation point?	Yes, when interferes w/combat readiness	Yes, but don't know where	Yes	Yes, but don't know where
Necessary or desirable for commonality among svc. programs?	No, incentives vary from svc. to svc.	Philosophical differences among svcs. militate against uniformity	No, must meet unique needs	No, programs must respond to peculiar needs of each svc.
What incentive for enlistment?	40% of HSG said opportunity for ed. was a primary motivation	50% said ed. opportunities caused enlistment	Significant	Primary incentive for over 70%
Abuses?	Cannot address	Not aware of any	None. Good checks and balances	Not aware of any. Program well audited
Complaints from servicemen	Duty doesn't permit participation	Not aware of any	Lack of variety Inflexibility of schools	High quality (Harvard) programs not available Mil. duties do not permit participation

Table 12. In-Service Education Course Enrollments (in Thousands) and Completion Rates

Note: Navy data primarily reflects shore activities and is therefore not representative of total participation rates.

	ARMY		AIR FORCE		NAVY	
	FY 73	FY 74	FY 73	FY 74	FY 73	FY 74
Academic Courses (Class Instruction)	132.7	198.9	15.1	8.4	.6	3.7
Completion Rate	81.5%	79.3%	89.7%	97.7%	57.0%	67.4%
Academic Courses (Civilian Schools, Colleges & Universities)	134.5	155.0	173.3	210.2	27.6	35.9
Completion Rate	81.6%	87.5%	89.4%	90.1%	90.3%	93.3%
High School Courses	8.9	13.1	30.7	36.9	6.5	9.8
Completion Rate	64.4%	73.3%	65.6%	80.5%	52.9%	51.3%
Technical/Vocational Courses	148.1	178.7	78.2	100.0	.6	1.2
Completion Rate	71.3%	54.0%	86.7%	91.8%	40.8%	71.3%
Correspondence Courses	66.9	59.5	105.2	113.4	4.4	1.6
Completion Rate	51.4%	48.2%	47.3%	60.6%	51.1%	92.3%
Totals	541.1	607.3	402.4	468.9	39.7	52.2
Overall Completion Rate	74.7%	70.7%	76.1%	82.7%	73.5%	83.0%

Is In-Service Education "Good"?

In-Service education is now accepted as an integral part of service life, as opposed to its earlier position as a morale and welfare function. The two questions most frequently raised are: a. How much can DoD afford for in-service education? and b. What impact do in-service education programs have on combat readiness?

In-service education must compete with other important programs within the service operations and maintenance budgets. The costs of education are high, primarily because it is labor intensive. The Industrial Revolution has not occurred for the education industry. Technology, except for television and audio-visual devices, has had little impact on education. There is increasing evidence that computer-administered instruction is a promising approach for reducing costs but it is estimated that its impact will be insignificant until the late 1980's.[1]

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[1] Richard G. Nibeck, Deputy Executive Director, Association for Education Communications and Technology.

In January 1975, funds for the General Educational Development Program of the Army were exhausted. Over $30 million was needed to keep it alive. Personnel were encouraged to use the G.I. Bill. Fort Hood, Texas, with one of the largest troop populations in the world, offers an example of the financial demands of in-service education. Fort Hood has an unresolved problem of providing adequate facilities for education programs. There are not enough counselors to meet the requirements for both enrollment counseling and long-range counseling for selection of career, civilian vocational and education goals.[2]

Although funded under operations and maintenance, in-service education is undoubtedly perceived by the Congress as a DoD "people" cost, already a matter of considerable concern. In May 1974, Congress directed the Marine Corps to terminate its Marine Associate Degree Program. Earlier, the Air Force's Airman Commissioning Program was stopped by Congress. Educators whose institutions cooperate with the DoD in providing in-service education complain about the inability of the services to live up to their commitments. One prominent educator, for example, stated that in over fourteen years of administering in-service post secondary programs, he believed that in each year without exception at least one of the services failed to honor its agreements due to fund exhaustion.[3]

The message of the Secretary of Defense to the Sixth Worldwide Armed Forces Educational Conference on December 6, 1974 is encouraging:

> In this time of limited funding the one resource that can continue to grow is the individual. This growth is through education. That is why we consider our educational opportunities so very essential to maintenance

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[2] Education Services Plan, III Corps and Fort Hood, FY76.

[3] Conversations with the Dean, University College, University of Maryland. July 16, 1975.

> of the All-Volunteer Force. You may rest assured that continuing to provide these opportunities is, and will remain, one of top priority.

Turning from cost considerations to the impact of in-service education on combat readiness, we find a more amorphous question. Some commanders inevitably ask:"How does the education make them fight better?" Education which enables the serviceman to absorb military training more readily, e.g., PREP, is generally recognized as a contributor to force effectiveness. It is not readily apparent, however, how a chief petty officer suddenly becomes more productive to the Navy while he is earning a college degree.[4] The services do pay a short-run price for in-service education. This price is probably lowest in the Air Force which operates as an industrial organization. Regular duty shifts permit an integration of mission requirements and educational pursuits. It is probably higher in other Services where sea duty, field training exercises, ROTC summer support, domestic unrest, natural disaster and other responsibilities require units to leave their home stations. The commander must either do without the services of at least some soldiers engaged in in-service education or disrupt the continuity essential for successful completion of their programs. However, there appears to be a growing correlation between mission and education, an increasing awareness that education contributes to rather than competes with combat effectiveness. It reinforces military training in developing the technical and leadership skill required in a modern defense force. It is responsible for cost avoidance by a wholesome occupation of the serviceman's time, with a concomitant reduction in delinquency rates.

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[4] See Christopher John's response to the CNA Task Force Study (Center for Naval Analyses, 11 July 1973).

Opportunities for Extension

A number of trends are discernible in in-service education, many of which will continue regardless of the fate of the G.I. Bill. Participation will continue to rise. Furthermore, there is room for new initiatives in providing new in-service educational programs in order to reach new constituencies. Examples from the past few years are the Navy Campus for Achievement and the Community College of the Air Force. The most recent example is the Army's National Apprenticeship Standards to provide registered certification of the individual soldier's skilled craft occupational training.

Now that personnel are no longer a draftable "free good," the services should make a greater effort to achieve an equitable balance between lower priority mission requirements and a reasonable response to the legitimate aspirations of servicemen for personal development. As a result the services can provide a more congenial and constructive environment for growth through education.

Educational counseling will receive increased emphasis to assist the serviceman in determining his short and long range personal improvement goals, and the educational programs available to assist him in meeting those goals. The Marine Corps, for example, now uses education officers, rather than civilian educational counselors, at its major bases. These officers possess advanced degrees in education and are managed like other Marine Corps officers sent to graduate school for the acquisition of a skill for which the Corps has a validated requirement.

The academic community will continue to support -- even woo -- in-service education with diverse institutions and with diverse educational packages consorting in education centers in the U.S. and overseas.

Table 14 roughly estimates the impact of each factor which we expect will alter in-service education participation.

What actions should the services take if the G.I. Bill were terminated with only a fair warning clause? Obviously an effort would be made to continue to attract the potential enlistee for whom education is a major motivating factor.

More *on-duty education* would enhance the attractiveness of in-service education. The *increase in tuition assistance percentage* as proposed by all the Services, could have a positive impact on attracting the higher mental categories into the Services. Inversely the Veterans Administration reported a drop in correspondence training following the drop in the reimbursement from 100% to 90%. This drop led first to a slowing in the growth of the number in correspondence training and then to a drop in the number in training.

Consideration could be given to *advancement or a bonus* for new educational levels achieved during a year or an enlistment, as is already done for passing skill tests. This practice is also followed in most educational systems.

New educational programs and new recruiting campaigns would be developed to *reach new populations*. An attractive target is the part-time student in a post secondary institution. A report on financing part-time students, the new majority in post secondary education, documents that 53% of them say cost is their main obstacle.[5]

Strategies for reaching the high school market should be examined and alternatives developed based on a joint Services approach.

If as the result of the termination of the G.I. Bill, the Services were unable to achieve recruiting objectives without enlisting a higher number of non-high school graduates then desired,

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[5] Report of the Committee on the Financing of Higher Education for Adult Students to the Office of Government Relations of the American Council on Education, 1974.

Table 14. FACTORS WHICH WILL INFLUENCE PARTICIPATION IN IN-SERVICE EDUCATIONAL PROGRAMS

Factor	Preliminary Estimate of Impact
General Trend within DOD	Up to 15% yearly increase
New Concepts in Adult Education	Up to total of 2/3 of total participation
Fiscal Undertow of Academic Institutions	Up to 10% yearly increase
Increased Accession of HS Graduates	Negligible[1]
Primacy of Combat Readiness	Places some ceiling[2]
Peacetime Military--less moves, longer terms	Noticeable increase, esp. Army
Saturation of Interest	Places some Ceiling[3]
Services' Initiatives--CCAF, SOC, etc.	Marginal Increase[4]
*Only Applicable in Event of GI Bill Termination	
New Breed of Entrants	Fewer "Warmups"
"Get it while you can" attitude	Part of the 57% now "Saving"
Increase % Support & no more reason to "save"	Marginal Increase[5]

NET ESTIMATE: Substantial potential to increase participation additional programs should be established to insure that the maximum number acquired the *basic educational skills* that accompany a high school education.

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[1] PREP takes the place of post-secondary study for these individuals.

[2] Will be estimated from surveys of Commanders.

[3] Will be estimated from available information sources.

[4] CCAF, SOC and AHEAD have not led to significant increases.

[5] MSG "factoring" method will be applied here.

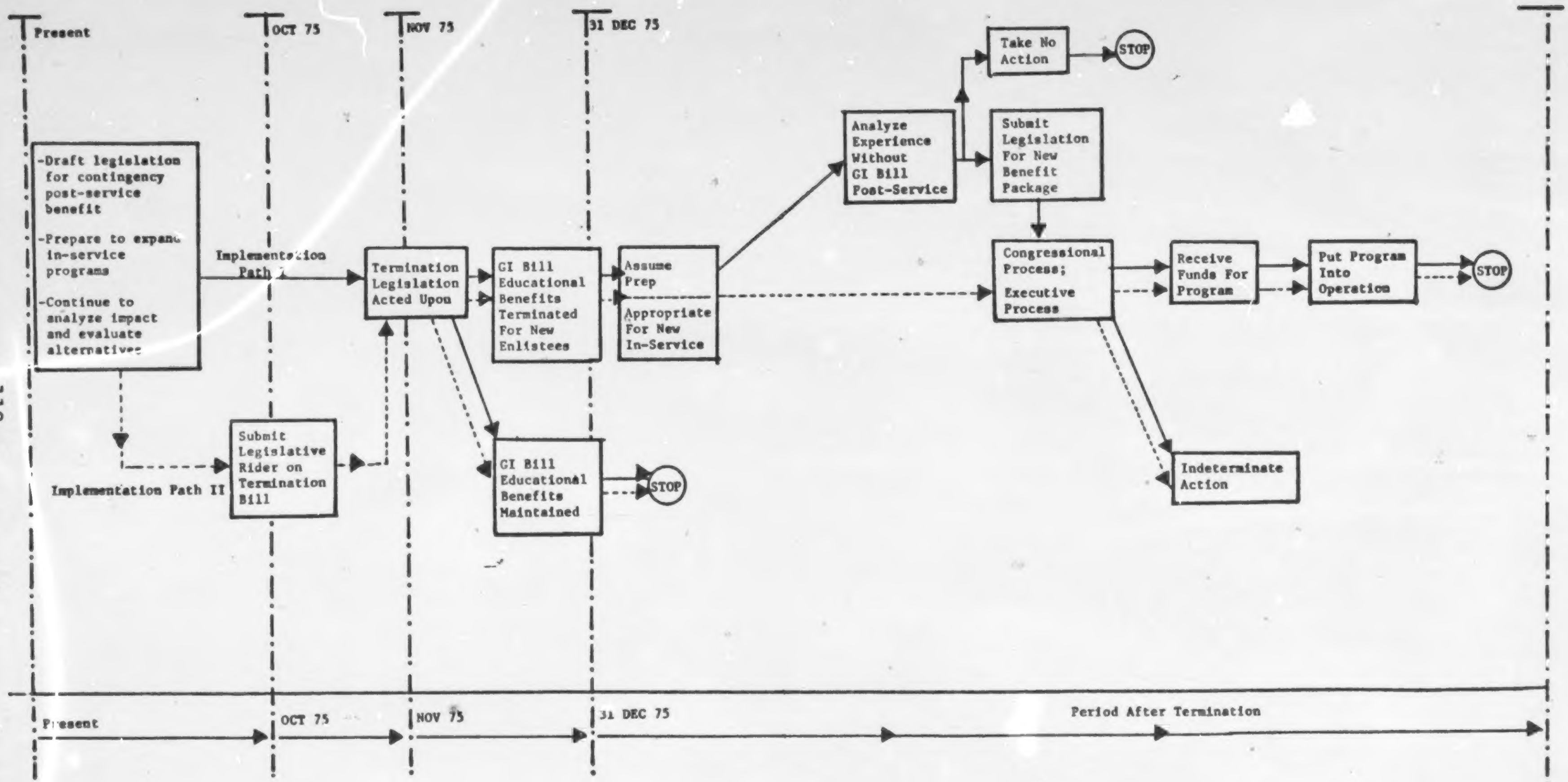
Assuming some intensification of in-service education to attract the person for whom education is an important enlistment incentive, the Services should also seek to involve, educationally, the serviceman who enlisted for reasons other than educational benefits. A person who is learning and growing will be a more productive person in any situation. The success of the Pro-Life Program of MG Henry Emerson in the 2d U.S. Infantry Division bears testimony to this precept. Maximum involvement reduces the possibility of polarity developing between those interested and disinterested in education.

A program of *controlled experiments* in educational benefits might be attractive (in preference, e.g., to the full-scale "AHEAD" venture).

Three other ideas for extending in-Service education which should be evaluated have recently come to our minds. The first is increased *civilian skill training* for military jobs, where feasible. The second (possibly related) is *seasonal offering of benefits*, which serve to manage the flow of accessions more uniformly into military schools. The third is new or renewed emphasis on *transitioning from enlisted status to officer status*, which is especially attractive since there were 25,535 minority enlisted personnel - 13,326 in the Army - who had already completed at least a year of college in FY1974.

Two *methods of generating programs* should be considered. First, the full system educational benefits model is generative, and could be used to structure ideas in a workshop of educational experts. Second, a contest could be run in the High Schools for program ideas -- or *prospective enlistees* could be asked to submit a personal proposal, in the form of a binding contract, for Service acceptance.

IMPLEMENTATION OF EDUCATIONAL BENEFITS PROGRAM


Present
OCT 75
NOV 75
31 DEC 75
-Draft legislation for contingency post-service benefit
-Prepare to expand in-service programs
-Continue to analyze impact and evaluate alternatives
Implementation Path I
Termination Legislation Acted Upon
GI Bill Educational Benefits Terminated For New Enlistees
Assume Prep
Appropriate For New In-Service
Analyze Experience Without GI Bill Post-Service
Take No Action
STOP
Submit Legislation For New Benefit Package
Congressional Process;
Executive Process
Receive Funds For Program
Put Program Into Operation
STOP
Indeterminate Action
Submit Legislative Rider on Termination Bill
Implementation Path II
GI Bill Educational Benefits Maintained
STOP
Present
OCT 75
NOV 75
31 DEC 75
Period After Termination

Subcommittee on Education and Training
Committee on Veterans' Affairs
U.S. House of Representatives
Hearings on G.I. Bill Educational Benefits: July 29, 1975

ISSUE	VETERANS ADMINISTRATION	VETERANS OF FOREIGN WARS	AMERICAN LEGION	NATIONAL ALLIANCE OF CONCERNED VETERANS	FLEET RESERVE ASSOCIATION
Terminate G.I. Bill for New Enlistees	Support (but with amendments to protect Delayed Entry Pool and 10-year eligibility provision)	Oppose termination.	Support termination	Oppose termination	"Appreciates the need to terminate veterans wartime benefits."
Transfer Budget to DoD	No mention	" The cost of the G.I. Bill should be charged to DoD as part of the cost of national security". "...(T)he DoD likes to dance so long as someone else pays the fiddler."	Implied support	No mention	No mention
DoD Enlistment Impact/Effect on Quality Levels	DoD surveys indicate DEP releases "could run as high as 30% of enlistees concentrated among those with the best qualifications."	"If it takes the G.I. Bill to attract the caliber of personnel needed for a strong national defense, and we believe it does, then the DoD ought to pick up the bill and educate the public as to the real cost of national defense."	Recognizes current recruitment incentive, but differentiates between "rehabilitation" aspects of "wartime programs" and enlistment benefit of "peacetime era."	No mention	No mention
Terminate PREP	There is "no longer a need for PREP". And, "the extensive training and educational programs" developed by DoD "can provide the means" for required education.	Implied	No mention	No mention	No mention
Delayed Entry Pool Eligibility	Benefits to those who enlist in DEP prior to G.I. Bill termination date.	No mention	No mention	No mention	No mention
Extension of Eligibility to 45 months (under current G.I. Bill).	Oppose."36 months .... is reasonable and equitable."	Support (but no official comment)	Support."The American Legion is committed to the concept of equal benefits for equal service."	Support. "NACV stands ready to assist the Congress in any possible way to ensure that our veterans receive equal treatment for equal service."	Support. "Such an extension will assure veterans of the opportunity to complete their education and earn their degrees."
View of Current G.I. Bill Educational Benefits	"The military service recognizes that they must provide effective inducement among which educational opportunity is one of the most attractive." There should be a "distinction between those required to perform military service and more who ... choose to serve."	The G.I. Bill is a valuable inducement to maintain our manpower needs in the Armed Forces." "...[I]t has been proven for every dollar spent on the G.I. Bill at least three dollars have returned to the Government in the form of higher taxes paid by those with higher education and, it follows, higher income."	The G.I. Bill "was to provide vocational readjustment and restore lost educational opportunities to those servicemen and women whose careers were interrupted or impeded by reason of active duty during a period of war or declared hostilities."	"NACV is particularly pleased over the passage of P.L. 93-508, The 'Vietnam Era Veterans' Readjustment Assistance Act of 1974' with its many provisions of benefit to today's veterans. This law is an excellent step toward reaching the goal of parity and equality for all veterans."	"The Government's costs in providing education benefits...have proven to be 'bread cast upon the waters.' Veterans' education has contributed significantly to our nation's economy and has increased the Government's revenue."

SCHOLARSHIP INSURANCE AS A POST-SERVICE EDUCATIONAL BENEFIT

Criteria for a Post-Service Educational Benefit Program

The following criteria are considered essential for establishment of a post-service benefit program:

#1. Can be funded by a DoD budget within the range of $100M.

#2. Offset the decrement of high school graduate, Mental Group I-III accessions caused by termination of the G.I. Bill.

#3. Minimize post-service administration.

#4. Avoid a strong incentive for separation.

#5. Target specifically for education.

The Scholarship Insurance Concept and Its Relation to the Criteria

The "scholarship insurance" concept is simply a recognition of two existing conditions. First, the quality H.S. graduate who might enter service wants to keep his college options open; this option can be provided by an insurance program. Second, there is a professionally operated insurance program for Servicemen in SGLI and VGLI.

The concept appears to meet the criteria for a post-service benefit program:

#1. Cost Reduction. The scholarship insurance policy has not been costed in detail, but costs as little as $54M yearly in the example discussed below.

#2. Quality Accessions. The insurance program would be expected to pick up losses effected by G.I. Bill termination.

#3. Minimal Administration. The Program could operate under the minimal administration of V.A., through contracted insurance experts, similar to SGLI.

#4. Avoid Incentive for Separation. Scholarship insurance would be in force until its use, so that it would not provide an incentive to separate. It could be doubled for selected reenlistees.

#5. Education Purpose. Claims are to be honored only upon receipt of a bonafide college billing.

Example of a Scholarship Insurance Policy

The following specific provisions of a scholarship insurance policy have been drafted to serve as a point of reference.

General

* Legislation is needed to establish Servicemen's Scholarship Insurance.

* The insurance would be purchased from a commercial insurance company by the V.A., using DoD funds.

  - in accordance with SGLI provisions of title 38, U.S.C., Ch. 19, Section III, as amended.

* An administrative office would be established by the prime insurance company contractor.

Cost. The cost of insurance is borne by the Department of Defense, on a monthly premium basis for specified skills; (and possibly by the individual Service member for other skills.)

Claims are made by the insured for college work of self, spouse or child. Payment is made by the insurance company in the amount of a submitted binding commitment to an accredited college, plus $1,000 subsistence per full-time semester not to exceed a total withdrawal of $8,000. A proof of insurance in force will be submitted with each claim.

Beneficiaries are the insured, or, in the event of the insured's death, the beneficiary designated by the insured (as administrator).

Persons Eligible to be Insured. The insured must enlist or reenlist in a skill designated by the Secretary of Defense, and fulfill all the terms of the contract before becoming eligible for claims. The contract will require a three-year term, and may require a specific branch of Service, a specific skill, and waiver of other enlistment options such as base of choice. Must be a HS graduate.

Election of Payment of Proceeds. (See "Claims", above). The binding commitment will be paid by check directly to the accredited college, and the subsistence share will be paid by check in the name of the student.

Termination occurs when either the insured has exhausted $8,000 or the insured, spouse and children are all deceased.

Forfeiture rules similar to those of SGLI apply.

Administrative Decisions. Determinations of the V.A. would be conclusive under the policy.

Advisory Council on SSI. The Law would provide for an Advisory Council consisting of the Secretaries of the Treasury (Chairman), Defense, Commerce, HEW, Transportation, and the Director of OMB. It meets at the call of the Administrator once a year, or more often to advise the Administrator on matters of policy.

Maintenance of Records. Names and amount of insurance committed should be maintained by the Service concerned while the member is on active duty, and the V.A. thereafter. Once a claim has been filed with OSSI, the claims records will be retained by OSSI.

Information and Assistance may be obtained at designated V.A. offices and the applicable Service's distribution center.

Preliminary Cost & Benefit Estimates

Based upon the example policy outlined above, assuming it to be available for Army combat arms skills and "hard" skills, leads to the following preliminary program cost estimates:

Number of insured added yearly: 20,000

Premium to allow full payment by end of 3-year term: $74.66 monthly per enlistee

(assumes 75% usage rate, for 50% of the face value; payable at an average of two years after completion of term; with money at 6% annual interest rate; allows for a 10% administrative and risk cost.)

Yearly budget;

20,000 enlistees per year X 3 years X $74.66 monthly X 12 months
= $53.8M (3 years accounts for steady state)

These costs assume that any other Service members who may be allowed to participate are covering their own costs.

The primary benefit would be attraction of 20,000 high school graduates to selected skills, thus counterbalancing the decrements in numbers and quality which have been estimated due to G.I. Bill termination. In the Educational Benefits Analysis 20,000 H.S. graduate decrement is an upper estimate of termination impact and 10,000 is a "best" estimate.

Disadvantages of Scholarship Insurance

The major disadvantage of SSI is that the specific concept is new, even though based upon SGLI experience. Since the concept is new, neither the administrative problems nor the actual attractiveness to potential recruits can be definitely predicted.

Appendix B

Summary of Literature

A summary of previous literature on the subject of educational benefits incentive appeal was conducted for the purposes of this analysis. Previous research which directly addressed the central theme of incentive endorsement and the imputed effect of G.I. Bill benefits was incorporated in Chapter 1, Problem Formulation Based on Previous Papers. In addition, prior analytical material was used as a supplementary source of insight and guidance in this study. This Appendix summarizes several additional topics related to the subject of educational benefits policy and contained in previous literature.

The Quality Individual

There is an abundance of research on the subject of enlistment motivation which supports the hypothesis that educational benefits are more attractive -- and, in many cases, *most* attractive -- to the "quality" individual. The indices of quality which are used, however, vary among studies -- depending for the most part on the availability and validity of certain "quality measures" within each particular data base.

Generally, quality is defined within the dimensions of educational attainment, mental aptitude, and academic standing (or grades) -- with high school graduation being the most frequently used criterion. Some studies have even extended the common delineations of quality to include more judgmental aspects such as an individual's interests, attitudes, special aptitudes, life style, and moral values and standards (e.g., Opinion Research Corp., 1974, pp. 25-31). Research efforts to date have not attempted to incorporate measures of quality other than educational attainment and grade achievement -- although several other characteristics and demographic variables were captured in the associated data bases. Judgmental criteria of quality, therefore, have not been used in this study.

Motivational Evidence

The pioneering work on youth attitudes is the "Youth in Transition" Project by Johnston and Bachman (1970, 1972).[1] Two enlistment incentives were found in this study to be prominent and likely to remain strong: higher pay incentives and paid schooling. Among these two incentives, however, it was found that *paid schooling* was *clearly attractive to more intelligent men* (Johnston and Bachman 1972, p. 183) -- while pay incentives were most attractive to those young men who averaged lowest in intelligence levels and verbal skills. Johnston and Bachman concluded, therefore, that *background*, *ability*, and *personality* differences exist among those attracted by different incentives -- and, that those individuals who were attracted by pay averaged lower on family socio-economic levels, test scores, occupational ambitions, self-esteem, needs for self-development, and self-utilization than did those attracted by paid schooling (p. 188). It should be added, however, that although the *most intelligent* young men were attracted to the Services by paid schooling, they were not attracted enough to actually enlist.

Background. Glickman *et. al.* in their study of "Experimental Incentives as an Influence on Enlistment Intention" also found the high appeal of *tangible* incentives among those at the lower end of the socio-economic continuum. Although there is no distinction of quality based on socio-economic status[2], financial incentives were perceived by lower socio-economic group members as the most effective means for achieving upward mobility (p. 30).

Differing perceptions of the means by which status may be boosted may also account for the similar income-related findings of Fisher (1972). The incentive of a paid college education was also shown to be heavily endorsed by young men from upper-middle income families in this study of enlistment motivators -- while educational benefits were not seen to be as attractive to youth from lower-middle income (under $8000) families (p. 74).

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[1] This study was longitudinal, following young men from the start of tenth grade (Fall, 1966) to the time when most would be expected to have been out of high school for a year (Spring, 1970).

[2] Opinion Research Corporation (1974) did report the incidence of "Quality Men" to be the highest among income groups above $7000 in middle or upper neighborhoods, however -- perhaps a self-explaining situation.

Ability. The theory which relates educational achievement and/or intelligence with higher motivation toward the goals of advanced education has consistertly received support from the various administrations of the Armed Forces Entrance and Examination Stations (AFEES) Surveys and the Gilbert Youth Attitude/Omnibus Surveys. Individuals who have finished high school or attended college are more likely than those who have not finished to see the value of G.I. Bill incentives as enlistment motivators (cf. also USAREC Probes, 1975; Opinion Research Corporation, 1974, p.6).

The Opinion Research Corporation Survey of the "Attitudes and Motivations Toward Enlistment in the U.S. Army" also found that *quality*[1/] men were not particularly attracted by monetary considerations, training for civilian jobs, or even the opportunity to travel. This interview survey of a nationwide stratified sample also showed a relatively high appeal of "eligibility for G.I. Benefits." Although the benefit considered to be the most attractive by all major sub-groups was the opportunity to learn a trade, the chance to obtain a college-type education (eligibility for G.I. Benefits after 2 year enlistment) consistently ranked among the five top motivators for enlistment among quality men (p.x).

Personality and Ambition. There is also other evidence to support the theory that interest in advanced education is correlated with

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[1/] OPC defines "Quality" to include individuals who meet the following standards: 1) High School graduate or soon to be; 2) academic standing at top 2/3 of class; 3) has interests and attitudes useful to the Army and suitable for technical and/or combat assignment; 4) has desirable moral standards and values. One-fourth of all non-college men were determined to meet these criteria (ORC, 1974, *piii*).

the various esteem variables of self-development and the drives associated with personal advancement. Past scholastic success is indicative not only of scholastic ability -- but also of the motivations for achievement (high grades) which are complimentary to the standard goals of a college education. In fact, Johnston and Bachman (1972) found that those individuals who were attracted to educational incentives had higher expectations of earnings than those attracted by pay (pp. 183-4).

Quality Deterrents. If the G.I. Bill is so attractive to those who best understand its value -- that is, those who have some college attendance or proven educational attainment -- it should follow that these people would also indicate the least desire to forego education (if the ability to pay is present) by enlisting in the Services. Glickman *et. al.* (1973) found this effect to be true among individuals who did not enlist: 57 percent of all men who decided not to enlist cited *limitations* of educational benefits and the desire to finish their education as a major enlistment deterrent; 60 to 75 percent of Junior College repondents attributed a high negative-enlistment influence on "the desire to finish education" (p. 33). Each group, however, also indicated the relatively high appeal of educational benefits as a "positive factor" affecting the enlistment decision.

Policy Implications. The issue of *representation* -- that is, the degree to which the Armed Forces are representative of the larger society -- was a major topic of discussion during policy debates on the all-volunteer concept. Fears of a possible "over-representation" of the lower socio-economic unemployed and minorities were expressed. It is also noteworthy that most criticism of the volunteer concept centered on the expected high concentration of enlistees from the "lower" ends of the common demographic scale -- the low-achievers, the low-aptitude scorers, the lower socio-economic strata, etc. -- while little attention was directed at the "highest" levels of quality measurement.

Johnston and Bachman (1972) recognized that the "more able individuals" were "under-represented among enlistees" -- and that the most desirable cross-section of high quality individuals could best be attracted by "either more in the way of educational alternatives or more assistance to individuals to pursue education on their own" (p. 195). Another more recent study of Army incentives made a similar point in reference to the recruitment of quality enlistees:

> To the extent that the Army attempts to attract individuals of high educational achievement, the differences in endorsement of reasons among education levels are important considerations in decisions about recruiting emphasis. The benefits offered by the Army (G.I. Bill and overall benefits) should be emphasized to those of higher education level (at least some college) since these individuals endorsed these reasons higher than any other groups (Kriner, Orend, and Rigg, 1975, p.46).

The implications of previous research on the enlistment motivation of quality individuals suggest that termination of educational benefits will strike hardest at the highest levels of quality. The most commonly used determinant of quality is high school graduation -- a relatively low measure of representation, when compared to the society at large. If educational benefits are most attractive at higher levels of quality, as determined by educational attainment, it may be that losses attributable to decreased benefits will also occur at the highest levels of quality for each subpopulation. By using high school graduation as an uppermost measure of accession quality, however, a major aspect of termination impact may be obscured: quality losses will begin at the highest levels. The Services may, therefore, not just lose a proportion of high school graduates -- but their *best* high school graduates.

The Correlation Between Education and Military Performance. The threat of losing more individuals at higher levels of educational achievement and attainment is, furthermore, disturbing when considerations of the correlation between education and performance are made. A most significant advance in the study of relationships between "quality" and performance was the "Quality Soldier Study" undertaken by U.S. Army Training and Doctrine Command (TRADOC, 1975). This elaborate and comprehensive study highlighted the overall superior performance of more intelligent (Mental Category I-III), better-educated (high school graduate) individuals in the three major areas of leadership, discipline, and job proficiency. Losses in quality within the range of 15 to 30 percent were consequently expected to "cause severe impacts" in the several training, resource, and mission requirements studied.

Another recent treatment of this topic was made by Beusse and Dougherty in their study on "Educational Incentives: The Critical Element to the Success of the All-Volunteer Force" (in Hershkowitz, ed., 1974). It was reported here also that promotions were more frequent, training performance higher, disciplinary actions lower, and mean-weekly-earnings after discharge higher for those individuals who achieved high school graduation or an equivalency diploma.

The Enlistment Decision Process

The Influence of the Recruiter. The importance of the recruiter in the enlistment process may not be overstated. As a minimum, he is *at least* a source of information. The precise degree and nature of influence exercised by the recruiter has been the subject of several studies of enlistment attitudes and incentives.

The Research Analysis Corporation (RAC) "Evaluation of the Modern Volunteer Army (MVA) Program" (1972), for example, reported the "paramount importance" of the recruiter as a "source of information" for practically all respondents on the RAC survey of Army personnel (Rae, 1972). In fact, the influence of the recruiter was mentioned as frequently as advertising and friends combined (Rae, 1972, p.19).

In contrast to the findings of RAC, the Opinion Research Corporation (ORC) study of Army attitudes and motivations among young men demonstrated that the Army recruiter was "not among the sources from which young men are most likely to obtain information about the Army" (ORC, 1974, p. *xii*). ORC reported the primary influence to be "news media" and "peers and elders who have had military experience." Although the recruiter was found to have a very high "favorable influence" (among the highest) on young men, and achieved a very good "credibility" rating -- he was, nevertheless, not considered to be of great importance as a source of information (ORC, 1974, p. *xii*).

The American Institutes for Research (AIR) study of Navy Career Motivation Programs also supported the theory of recruiter primacy as a source of information to the inquiring individual -- but remained on middle ground concerning the degree of influence which recruiters may have in the ultimate enlistment decision process (Glickman, *et. al.*, 1973, pp. 11-16). Although the initial contact with the Navy recruiter was hypothesized to be quite critical (from the point of view of an individual's socialization), AIR findings suggested that the typical individual who seeks out the recruiter has, at some time previously, decided in favor of enlistment (Glickman, *et.al.*, 1973, p.13). Accordingly, the individual is merely seeking a sense of direction and/or meaningful knowledge regarding his options -- that is, "grounds for confirmation rather than persuasion or influence from the recruiter as to whether or not he should enlist":

> We are not suggesting that the recruiter has no influence in the enlistment process. On the contrary, our model indicates that the recruiter does have influence on the enlistee that may have important long-range behavioral implications. However, the recruiter's immediate influence is not evident in persuading a man to enlist so much as it is in giving the enlistee information about the Navy (Glickman, *et. al.*, 1973, p.13).

This theory of early decision-making among potential enlistees has found support in various applications of attitude surveys. One result which repeatedly occurs on incentive questions is the generally higher appeal of incentives (real and hypothetical) among youth predisposed to enlist than those reluctant to join the services. (Fisher and Rigg, 1974, pp. 5-6). If the potential enlistee does, in fact, already possess a high predisposition toward enlistment, there is reason to believe that his final decision may be affected more by the relative influence of *negative factors* rather than positive reinforcers. If this is true, it should take less to push the individual into a commitment of service than it would be to pull him away.

Fisher also found that the same incentives which appealed to potential enlistees were more attractive to men who were not initially predisposed to enlist (Fisher and Rigg, 1974). Again, the effect of incentive impact is reversed: although the attractiveness of certain incentives may elicit positive response, there is little likelihood of convincing an individual with a high predisposition against enlistment that he should, in fact, enlist. Nevertheless, in order to increase the pool of men available for recruitment, there must be an incentive mechanism of considerable attraction for those individuals who express indifference or who fluctuate between positive and negative attitudes toward enlistment.

Awareness of Incentives. An important question for policymakers should also be the extent to which current or future benefits are exploited in the recruiting marketplace. Surveys are notoriously weak in indicating actual knowledge of questionnaire items by survey respondents. Although it is not always important to know more than the simple fact that a certain incentive or reason interacts to cause enlistment motivation, it is necessary to probe the underlying factors by which such decisions are made if management policy seeks to change the status quo.

The lack of knowledge of the extent of benefits, pay and Service-related incentives by new recruits is fairly common. This is probably no less true of many individuals who express interest in enlisting for "educational benefits." Although there has been little work done to examine true knowledge of incentives, there are indications that few enlistees are aware of the extent and amount of benefits available under the G.I. Bill. For many individuals, "going to school on the G.I. Bill" is automatically associated with service in the Armed Forces -- with perhaps minimal concern or immediate preference for this far-removed benefit. As a "future veterans' benefit" -- or post-service benefit -- it is likely that awareness of the actual entitlement is limited to a total picture or conceptualization of the G.I. Bill as an important investment in readjustment. Knowing more than just that the G.I. Bill is "important" and "valuable" may not be considered to be critical information by the new or potential enlistee.

This theory might explain why instances of low awareness by potential users of the G.I. Bill occur. On the "Youth in Transition" survey, for example, only 27.3 percent of all those who said they would enlist, given the education incentives, actually *knew* anything about what the military presently offered in respect to education (Johnston and Bachman, 1972, p.233). A more recent survey of the attitudes of youth toward military service resulted in a 16 percent lack of previous knowledge response to V.A. educational benefits (fifth least-known on a list of seven benefits). And, surprisingly, there was a greater awareness of V.A. education allowances among the low probability (less than 40 percent) of enlistment respondents (MARDAC, 1975, pp. 11-12).

Even among potential groups who might "influence" enlistment decisions, research shows low awareness of benefits. ORC, for example, found a substantial majority of educators placing the highest importance (on a scale of enlistment facts for a young man) on "eligibility for G.I. Benefits after a two-year enlistment" -- with 89 percent considering it "very important" (ORC, 1974, pp. 130-131). This same sample of educators frequently expressed the opinion that one way to upgrade the quality of Army enlistees would be to "educate young men and the public" about the applicability of the G.I. Bill (p. 132). Yet, three educators in ten were not even aware that the G.I. Bill still applied to enlistees in the military service (p. *xix*).

With increased societal emphasis on education, an effective *marketing strategy* is apt to be one which: (1) seeks to create an association of service in the Armed Forces with education and educative experience -- to complement socialization and early predispositions toward enlistment among quality young people; and (2) provides the marketing strength of educational advisement, information, and direction through the resources of recruiter contact.

The G.I. Bill has institutionalized a process of educational assistance. For many young people, enlistment may be one alternative source of scholarship aid for advanced education and training. Others may view it as the interest paid on an investment of time in the military service -- or an insurance policy on personal development. In all cases, however, it is a part of the socialization and introduction of a young person to the possibilities of military service. Loss of this valuable *association of enlistment with the opportunities for advanced education* could be more damaging over time than any immediate losses in quality accessions might indicate.

Appendix C.

Data Base

This Appendix presents an overview of the data base used in the Educational Benefits Study.[1] Because the measurements and inferences made in this study have necessarily depended on the available information, an appreciation of the strengths and weaknesses of the underlying data base is crucial to an understanding of this work. Overall, the surveys available were sufficiently well-sampled to justify the extrapolations made from them. This claim will be documented in what follows. Additionally, a detailed listing of the errors that were detected will be given and will be accompanied by an explanation of how these inconsistencies were handled.

From a conceptual perspective, much of the Educational Benefits Study fits into a broader setting, that of an accession analysis. The work has focused on the resolution and measurement of the key influences underlying enlistment flow[2] and has placed particular emphasis on those influences that relate to educational benefits.

It follows from this that the informational needs of this study have paralleled those of previous researchers in accession analysis: data identifying the civilian market, data characterizing the in-service 'buyers' group, and data detailing the flow from the first group into the second. Traditionally, data on each of these groups in their own right has been plentiful. On one side is the multitude of readily available educational and youth surveys; on the other is an equally voluminous stack of in-service

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1/ The term data base here is restricted to mean the set of survey tapes used in the course of this work. Much additional information, ranging from Census data to previous research, played an active role in the quantitative aspects of this study but has been listed separately in the Bibliography.

2/ Key influences were chosen from a broad range of possible considerations: the presence or absence of particular benefits, the demographic geography of the 17-25 year old segment of the population and the educational aspirations of the same are some that were found to be particularly significant. In fact, the isolation of all variables showing a high correlation with enlistment rate would have been an impossible task. This was circumvented by use of the 'proclivity vector'. The method of application and assumptions underlying this device are explained on page 43.

surveys and Master File statistics. Information linking these two groups, however, has been both scarce and somewhat unreliable and this deficiency has necessarily affected the accuracy of previous force-strength forecasts.

This study has had the good fortune of working with both the National Longitudinal Study, the virtues of which will be extolled below, and the battery of Gilbert Surveys administered since May 1972. These two surveys provide what is undoubtedly the most reliable, currently available data on transitions from the civilian youth population into the military. The information derived from these files provides the input to the EBM simulation (pp.41 to 45) as well as the source material for the econometric estimate of enlistment losses due to G.I. Bill termination (pp. 48 to 57). It is expected that the reliability of this data will reflect itself in the accuracy of these forecasts.

These two surveys satisfied the first and third needs of this research, but did not provide sufficient information about the in-service population itself. This difficulty was overcome by procuring copies of the May 75 AFEES survey and of the 1973 DoD Personnel Survey, form A. Data from these was then used in several of the micro analyses described in Chapter 2 as well as in the self-declared estimate of G.I. Bill termination impact included in Chapter 3.

What follows is a description of these four surveys followed by a summary of the analyses conducted on each of them. In reading through this, it is important to remember that each of the NLS, the Gilberts, the AFEES, and the DoD In-service Surveys is actually an aggregate data base consisting of several, different editions, whence the reference to the 1973 Gilbert, the Base Year NLS, etc.

A final note with regard to the questionnaire forms. The inclusion of the relevant questionnaire sheets is a traditional and commendable practice in the analysis of survey data. The number of questionnaires involved in this study, however (8 of them and voluminous ones at that), introduced a practical problem: the sheer size of the final report.

Accordingly, rather than make arbitrary choices about what should be included and what should be left out, the reader is provided in each case with the name and address of the agencies responsible for administering the survey. Questions or requests for copies can be directed to this source.

National Longitudinal Study/The Survey:

In the Spring of 1972, the original Base Year NLS Questionnaire was given to 18,143 high school seniors throughout the U.S. Measurements were taken from the students and from their schools as to demographics, achievements, attitudes and motivations. In October of 1973, thanks to an extensive follow-up operation, 86% of the original respondents were recontacted (and some new ones were picked up) and asked to fill out questionnaires asking them what they were doing now, whether and how their plans had changed, and so forth.

The survey was administered by the National Center for Educational Statistics of the Office of Education and was preceded by four years of planning and an extensive investigation into the data needs of the research community. The sample, designed as a random, stratified representation of the entire Senior High School Class of 72, was carefully executed and involved the participation of 1200 secondary schools across the country.

Deviations from this sampling technique were corrected by appropriately constructed weights.[1/] These were also used to weight the sample 'up' to national size, i.e., to permit direct comparison between the survey figures and national Census data. Checks of this sort were carried out at the outset of this project and showed that the weighted cell sizes were close enough to Census Bureau estimates of comparable groups to justify the use of NLS numbers as nationally representative.

[1/] A description of the method by which these weights were constructed as well as copies of the questionnaires and other information relevant to the NLS can be found in the "Base Year and First Follow-Up Data File Users Manual" available from the National Center for Education Statistics, 400 Maryland Avenue, S.W. Washington, D.C. 20202.

Results derived from the NLS appear throughout these pages, principally in the Organization of Individuals section in Chapter 2 and in the EBM analysis of Chapter 3.

The uses of the NLS in the EBM simulation are best explained by the 'Model Logic' diagram on p. 44. More generally, the NLS was used to measure the relationship between a respondent's intentions and his actual behavior. The combination of Base Year and first Follow-Up Surveys made the identification of these transitions a matter of certainty. For example, by considering the Follow-Up file it was possible to find the exact number of Black, 18 year-old high school seniors with grades in the B to C range who had enlisted. Then, by going back to the Base Year survey, it was possible to find how many of these had planned to enlist as far back as a year prior to their accession, how many had thought they would definitely not enlist and so on. These numbers gave an estimate, and a reasonably accurate one, of the corresponding national behavior. An analogous identification procedure was used to measure the extent of transitions between 'first-choice' intended branch of service and the service actually joined. The way in which the probabilities derived from these numbers were fit into the accession queue model is detailed on pages 41 to 43.

Besides its focal role in the simulation analysis, the NLS played an important part in the identification of the groups which are most affected by the G.I. Bill as an enlistment incentive. The variable used to discriminate between different levels of G.I. Bill 'pull' was Base Year question 46C: "How important was earning money for your education or becoming eligible for educational incentives under the G.I. Bill in your decision to enter the military?" Groups were isolated from a variety of demographic indicators: Age, Race, Intended Branch of Service, etc. The results of this analysis appear on pp. 27-33.

The Gilbert Youth Attitude/The Survey

The Gilbert Youth Attitude Surveys were conducted for the Department of Defense by Gilbert Youth Research, Inc. They have been administered in 6-month intervals, usually November and May, since 1971. The samples, each of which consisted of about 2,000 sixteen to twenty-one year old civilian males, were designated to be nationally representative and were weighted accordingly.[1] Some inconsistencies in the weights were detected and will be discussed below.

The actual data was obtained by extensive personal interviews conducted by a member of the respondent's immediate peer group. Though the actual questions have differed from one survey to another, the overall objective for DoD has remained the same: to determine the American youth's attitude toward the military, his disposition toward enlistment, knowledge of currently available benefits and options, reaction to these incentives and his response in the event of the termination of a given (e.g., G.I. Bill) benefit. Besides these attitudinal questions, the usual demographic and socio-economic information was collected as well as some data about the respondent's personal history: had any of his family enlisted, what did his friends think of the service, etc.

In May of this year, rather than sponsor a new edition of the survey, the Department of Defense purchased six questions in the 1975 Gilbert Omnibus Survey. This is a poll conducted by the Gilbert organization independently of the Youth Attitude Surveys. The six questions, which were of the usual attitude-towards-enlistment type, were accompanied by forty-seven demographic variables.

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[1] Information concerning the technical aspects of the weighting and of the survey administration, as well as copies of the questions, can be obtained from Gilbert Youth Research's parent organization: Gilbert Marketing Group, Inc., 515 Madison Avenue, New York, N.Y.

This study has made use of the May 72, 73, 74, and 75 (omnibus excerpt) editions. The analysis outlined below was replicated on each of these surveys. First, the relevant demogrpahic variables were used to stratify the sample into appropriate cells (age by race by High School grades). Next, the likelihood of enlistment question was used to find the percentage within each cell associated with each of the codes: definitely enlist, probably enlist, probably not enlist, definitely enlist, and don't know. These cell distributions, which gave an approximation to the probability that a youth with a particular set of demographic characteristics would have a certain disposition towards enlistment, were then input into the EBM (see the Model Logic diagram on page 44).

The 1975 Omnibus included two likelihood-of-enlistment questions -- one under existing circumstances, the other in the event of G.I. Bill termination. The distributions of disposition towards enlistment corresponding to these two questions were the basis of the two queue forecasts that measured the impact of G.I. Bill termination. It is important to note at this point that the numbers derived from Gilbert were a percentage distribution rather than actual numerical counts. Examination of the Gilbert weights showed that they were not in agreement with reliable estimates[1] of the national population. In view of this difficulty, it was assumed that such discrepancies were at least systematic, i.e., that though numerical counts might not match, corresponding cells should be of approximately the same relative size (percentage). This assumption appears reasonable in light of the effort made by Gilbert Youth Research to poll a nationally representative sample. Census data was used to convert this percentage distribution into the numerical one which underlies the actual queue estimates. The way in which this was done is explained on page 41.

1/ Derived from the Census Bureau and from the National Center for Education Statistics.

Armed Forces Entrance and Examination Stations (AFEES)/ The Surveys

The Department of Defense first began to collect survey data from its enlisted accessions in October of 1970. Enlistees were asked to complete an anonymous[1] questionnaire at the time of their Armed Forces Entrance and Examination Stations (AFEES) processing. They were asked questions about their background, about the influences behind their enlistment decision and about their reaction to hypothetical changes in the recruiting environment, e.g., "would you have enlisted if post-Service educational benefits were cancelled?" Though the 6 surveys administered since that time have differed considerably in sample size, content, and timing, the AFEES questionnaires have remained a unique source of detailed information regarding the changing attitudes and demographics of the accession pool. In particular, their applicability to a study of educational incentives became readily apparent from the very beginning of this project.

Because it was felt that the impact of G.I. Bill termination needed to be examined within the setting of an all-volunteer force, only the 3 surveys given since 1973 were considered: the April - December 73, the September 74, and the May 75 AFEES.

Copies of each of these were obtained and examined, but only the results from the most recent survey, the May 75 edition, appear in this report. It was felt that the timeliness of this data (the questionnaire was administered between April 28 and May 9 of this year make it the most useful to the forecasting problem that has been the crux of the Educational Benefits Analysis.

The questionnaire was completed by 13,299 respondents from 65 (AFEES) stations across the country. The number of forms assigned to each station was intended to be proportional to the percentage of total accessions -- January to May of 75 -- processed by that station. In this way, the sample was designed to be representative of the overall accession pool. Deviations from this design were corrected by constructing normalized weights which mimicked the composition of the March 75 accessions.[1]

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[1] Though names and addresses have never been asked, the last two editions of the survey have requested Social Security numbers.

Armed Forces Entrance and Examination Stations (AFEES)/The Analysis

Three of the analyses described in this study are based on the May 75 AFEES. The work on grouping incentives presented on pages 15 - 22 used the measure of importance assigned to each of fourteen incentives (item 17A - 17W on the questionnaire) to study the underlying structure of enlistment motivation. The table on page 51 which presents the proportion of "self-declared" losses[1] in various sub-groups within the accession pool, was obtained by crosstabulating the "importance of educational benefits" questions (items 17B and 25B) with demographic variables (items 1, 2, 3, and 4). Finally, the tables on page 26 rank the fourteen incentives and seven enlistment deterrents listed on the survey in order of the importance assigned to them by the respondents. These values are derived from questions 17A-W and 25 A-I.

1973 DoD Personnel In-Service/The Survey

The 1973 DoD Personnel Survey was administered as part of the Office of the Secretary of Defense Manpower and Reserve Affairs research program. It was the third in a series of omnibus surveys administered in 1969 and 1971. The main purpose of the survey was to provide information on the attitudes of servicemen toward a number of DoD-wide programs and policies. This list of issues to be examined included in-Service education, and it is in this respect that the survey is germane to the Educational Benefits Analysis.

A total of 24,569 enlisted men and women completed the form A version of the survey.(An enlisted form B and Officer forms C and D were also distributed but were not used in this study). The respondents were chosen by a standard, stratified random-sampling technique. Selection used the last field of the social security number as an approximation to a uniform random variable. Weights were assigned by comparing the pay grade distribution in the sample with each Service's pay grade frequencies.

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[1] Information regarding the details of the weighting technique and about other aspects of the survey as well as copies of the questionnaire themselves can be obtained from the Survey Research Division of MARDAC, 300 N. Washington St., Alexandria, VA 22314

[2] A "self-declared loss" is an individual who endorsed the G.I. Bill incentive as 'very important' in his enlistment decision and also claimed that he would 'definitely not have enlisted' in the event of G.I. Bill termination.

1973 DoD Personnel In-Service/The Analysis

Work done on the 1973 Personnel survey appears on pages 37 through 40 under the heading "Reenlistment Intent versus Original Reenlistment Motive". The section addresses itself to the reenlistment behavior of recruits who listed the G.I. Bill as their strongest accession incentive. This behavior is investigated by application of Exploratory Data Analysis techniques to the distribution of enlisted personnel across a 4 X 2 X 7 table giving years of service by reenlistment intent by first reason for entry into the military. The three variables correspond to items 12, 22 and 44 respectively on the Form A questionnaire.

APPENDIX D

EBM Computer Program

The Educational Benefits Model was written in BASIC for the Honeywell 635 system. The model requires 6 input files:

TRANSITN	contains a 12 X 5 matrix of transition probabilities from the NLS.
BRANCH	contains a 48 X 5 matrix which distributes the input data into the 4 Services.
FACTOR	contains alphanumeric information used in printing the scenario.
ACTUAL	contains a 4 X 4 matrix which distributes from intended to actual branch of Service.

The other 2 files are variable and their names are entered during execution. These files each contain a 12 X 5 matrix from the Gilbert Survey data. The total storage requirement for the model and its associated files is 16 LLINKS. A run takes 5.5 minutes and costs $1.37.

Program Listing

```
100 DIM I(48,7),T(12,7),J(48,7),K(48,7),P(48,7),F(48),G(48) A(12,5),B(12,5),X(48,5)
101 DIM Y(12,5),U(48,5),V(12),W(12),D(4,4),E(48),H(48)
110 REM     VARIABLES
120REM      N=TOTAL MALE POP >=18, HSG AND ABLE
130 REM      I IS INITIAL CONDITIONS VECTOR PRIOR TO POLICY IMPACT
140 REM     P=INITIAL CONDITIONS AFTER POLICY IMPACT
150 REM      T= SET OF TRANSITION PROBABILITIES -
160 REM      J=ACCESSIONS PRIOR TO IMPACT
170 REM      K= ACCESSIONS AFTER IMPACT
180 REM      F=ACCESSIONS BY SERVICE PRIOR TO IMPUT
190 REM      G=ACCESSIONS BY SERVICE AFTER IMPACT
200 PRINT"                PLEASE ENTER NAMES OF 2 INITIAL CONDITIONS FILES",
210 INPUT F$,G$
220 FILES *;TRANSITN;*;FACTOR;BRANCH;ACTUAL
230 FILE #1,F$
240 FILE #3,G$
280 MAT READ # 1:A
290 MAT READ # 2:T
300 MAT READ # 3:B
310 MAT READ # 6:D
311 PRINT"HOW MANY PROCLIVITIES WILL NOT BE USED? ANS 0 TO 4"
312 INPUT C7
314 IF C7 =0 GOTO 325
315 PRINT"WHICH PROCLIVITIES WILL NOT BE USED?"
316 PRINT"1=DEFINITELY YES"
317 PRINT"2=PROBABLY YES"
318 PRINT"3=PROBABLY NO"
319 PRINT"4=DEFINITELY NO"
320 PRINT"5=NO PLANS"
321 FOR  Y=1 TO C7
322 INPUT C(Y)
323 NEXT Y
324 GOSUB 3310
325 GOSUB 3460
330 READ # 4:P$(1),P$(2),E$(1),E$(2)
340 REM          BRING PEOPLE INTO THE SERVICE (APPLY 12X7 TO 48X7, 4 TIMES)
350 FOR Z=1 TO 4
360 FOR X=1 TO 12
370 C2=C2+1
380 FOR Y=1 TO 7
390 J(C2,Y)=I(C2,Y)*T(X,Y)/1000
400 K(C2,Y)=P(C2,Y)*T(X,Y)/1000
410 NEXT Y
420 NEXT X
430 NEXT Z
440 REM        PROCLIVITY BY SERVICE
450 FOR Z=1 TO 48
460 FOR X=1 TO 7
470 F(Z)=F(Z)+J(Z,X)
480 G(Z)=G(Z)+K(Z,X)
490 NEXT X
500 NEXT Z
510 REM         COLLAPSE G MATRIX
520 FOR Z=1 TO 12
530 FOR X=Z TO Z+36 STEP 12
540 V(Z)=V(Z)+G(X)
550 W(Z)=W(Z)+F(X)
560 NEXT X
570 NEXT Z
```

```
580 REM     NOW DISTRIBUTE V ARRAY ACCORDING TO F ARRAY TO MAKE NEW G ARRAY
590 FOR Z=1 TO 12
600 FOR X=Z TO Z+36 STEP 12
610 IF E(Z)=0 GOTO 630
620 G(X)=V(Z)*(F(X)/E(Z))
630 NEXT X
631 NEXT Z
632 FOR Z=1 TO 48
633 E(Z)=F(Z)
634 H(Z)=G(Z)
635 F(Z)=0
636 G(Z)=0
637 NEXT Z
650 REM       DISTRIBUTE BY ACTUAL BRANCH
660 FOR Z=1 TO 12
670 C8=0
680 FOR X=Z TO Z+36 STEP 12
690 C8=C8+1
700 C7=0
710 FOR Y=Z TO Z+36 STEP 12
720 C7=C7+1
730 F(X)=((E(Y)*D(C7,C8))*.01)+F(X)
740 G(X)=((H(Y)*D(C7,C8))*.01)+G(X)
750 NEXT Y
760 NEXT X
770 NEXT Z
780 FOR Z=1 TO 5
790 PRINT
800 NEXT Z
810 PRINT"                                    THE MANAGEMENT SCIENCES GROUP"
820 PRINT
830 PRINT
840 PRINT"                            THE EDUCATIONAL BENEFITS POLICY IMPACT MODEL"
850 PRINT"                            ------------------------------------------------"
860 PRINT
870 PRINT" I.  THE ACCESSION COHORT"
880 PRINT
890 PRINT
970 PRINT
990 PRINT
1100 PRINT
1110 PRINT
1130 PRINT"                               % CHANGE IN THE MIX OF THE ACCESSION COHORT"
1140 PRINT"                              BY SERVICE, RESULTING FROM POLICY #;
1141 PRINT"IMPLEMENTATION"
1150 GOTO 1180
1180 : #
1190 PRINT
1200 PRINT
1210 PRINT USING 1340
1220 PRINT USING 1350
1230 PRINT USING 1360
1240 PRINT USING 1370
1250 PRINT USING 1380
1260 PRINT USING 1390,E5(1)
1270 PRINT USING 1400,E5(2)
1280 PRINT USING 1350
1290 PRINT USING 1410
1300 PRINT USING 1420,E5(1)
1310 PRINT USING 1430,E5(2)
1320 PRINT USING 1350
1330 PRINT USING 1340
```

```
1340 :                        * * * * * * * * * * * * * * * * * * * * * * * * * * *  * *
1350 :                        *
1360 :                        *                   SCENARIO
1370 :                        *                   ----------
1380 :                        *             POLICY FACTORS:
1390 :                        *                  1. IN-SERVICE: 'LLLLLLLLLLLLLLL
1400 :                        *                  2. POST-SERVICE: 'LLLLLLLLLLLLLLLL
1410 :                        *             ENVIRONMENTAL FACTORS:
1420 :                        *                  1. UNEMPLOYMENT: 'LLLL
1430 :                        *                  2. NATIONAL POSTURE: 'LLLLLLLLLLLLLL
1440 S$(1)="ARMY"
1450 S$(2)="NAVY"
1460 S$(3)="MARINE CORPS"
1470 S$(4)="AIR FORCE"
1480 A$(1)="17-18"
1490 A$(2)="19-25"
1500 R$(1)="CAUC."
1510 R$(2)="OTHER"
1520 M$(1)="A&B"
1530 M$(2)="[illegible]C"
1540 M$(3)="[illegible]"
1541 M$(4)="---"
1550 X$(1)="DEFINITELY YES"
1560 X$(2)="PROBABLY YES"
1570 X$(3)="PROBABLY NO"
1580 X$(4)="DEFINITELY NO"
1590 X$(5)="NO PLANS"
1610 FOR Y=1 TO 4
1620 T3=00
1621 T4=0
1630 PRINT
1640 PRINT
1650 PRINT USING 2160,S$(Y)
1660 PRINT
1670 PRINT USING 2170
1680 PRINT USING 2180
1690 PRINT USING 2190
1700 FOR Q=1 TO 2
1710 PRINT USING 1720,A$(Q);
1720 :'LLLL
1730 :[illegible]
1740 S=1
1750 PRINT USING 1751,R$(S),
1751 : 'LLLLLLL
1752 IF S=2 GOTO 1912
1760 FOR V=1 TO 3
1770 PRINT USING 1780,M$(V),
1780 :'LLL
1790 C3=C3+1
1800 IF F(C3)<>0 GOTO 1830
1810 PRINT USING 1840,F(C3),G(C3),F(C3)
1820 GOTO 1850
1830 PRINT USING 1840,F(C3),G(C3),(((G(C3)/F(C3))-1)*100)
1840 :         ##.##    ##.##    ###.##
1850 T3=T3+F(C3)
1860 T4=T4+G(C3)
1870 IF V=3 GOTO 1890
1880 PRINT"                 ";
1890 NEXT V
1900 PRINT"        ";
1910 S=2
1911 GOTO 1750
1912 FOR L=1 TO 3
1913 C3=C3+1
1914 N=N+F(C3)
```

```
1913 O=O+G(33)
1915 NEXT L
1917 T3=T3+N
1918 T4=T4+O
1919 PRINT USING 1780,B$(4);
1920 IF N<> 0 GOTO 1923
1921 PRINT USING 1880,N,O,0
1922 GOTO 1924
1923 PRINT USING 1890,N,O,(((O/N)-1)*100))
1924 PRINT
1925 N=0
1926 O=0
1930 NEXT Q
1940 PRINT"                                          ";
1950 PRINT USING 1970
1960 PRINT" TOTAL IMPACT       ";
1970 IF T3=0 GOTO 2010
1980 PRINT USING 1890,T3,T4,(((T4/T3)-1)*100)
1990 :                                   -- ----     -------    -----
2000 GOTO 2020
2010 PRINT USING 1880,T3,T4,T3
2020 PRINT
2030 PRINT
2040 NEXT Y
2050 C3=0
2060 FOR X=1 TO 5
2070 PRINT
2080 NEXT X
2090 GO TO 3040
2160 :                SERVICE BRANCH : ZZZZZZZZZZZZZZZZ
2170 :                       NO          PRESENT      ACTUAL        PERCENT
2180 : AGE   RANK     GRADES      POS. [illegible]     POS. [illegible]       CHANGE
2190 :-----------------------------------------------------------------------------------
[illegible]
3320 FOR Y=1 TO C7
3330 FOR Z=1 TO 12
3340 X=C(Y)
3350 A(Z,X)=0
3360 B(Z,X)=0
3370 NEXT Z
3380 NEXT Y
3390 X=0
3400 RETURN
3460 REM      PROJECTION 12% INITIAL CONDITIONS BY BRANCH OF SERVICE
3470 MAT READ = [illegible]
3480 FOR Y=1 TO 5
3490 FOR G=1 TO 12
3500 FOR Z=1 TO G*36 STEP 12
3510 A(Z,Y)=(A(Z,Y))*A(G,Y)*.01
3520 B(Z,Y)=(A(Z,Y))*[illegible]
3530 NEXT Z
3540 NEXT G
3550 NEXT Y
```

```
3560 REM      NOW CONVERT TO [illegible] [illegible] [illegible] (CO[illegible] [illegible] [illegible] 1525 TO 4337)
3570 FOR Z=1 TO 48
3580 FOR Y= 1 TO 5
3590 S(Y) =I(Z,Y)
3600 R(Y)=P(Z,Y)
3610 NEXT Y
3620 I(Z,1)=(1319/3727)*S(3)
3630 P(Z,1)=(1319/3727)*R(3)
3640 I(Z,2)=(717/753)*S(1)
3650 P(Z,2)=(717/753)*R(1)
3660 I(Z,3)=(36/753)*S(1)+(747/1766)*S(2)
3670 P(Z,3)=(36/753)*R(1)+(747/1766)*R(2)
3680 I(Z,4)=(1019/1766)*S(2)+(295/2844)*S(5)
3690 P(Z,4)=(1019/1766)*R(2)+(295/2844)*R(5)
3700 I(Z,5)=(1058/3727)*S(3)+S(4)
3710 P(Z,5)=(1058/3727)*R(3)+R(4)
3720 I(Z,6)=2470/2844*S(5)+1350/3727*S(3)
3730 P(Z,6)=2470/2844*R(5)+1350/3727*R(3)
3740 I(Z,7)=109/2844*S(5)
3750 P(Z,7)=109/2844*R(5)
3760 NEXT Z
3770 REM
3780 RETURN
3790 REM
3800 REM
3810 REM
3820 REM
3830 REM
3840 END
```